# PRINTING EQUIPMENT ENGINEER

Edited for those concerned with the use and care of Printing Equipment

AUGUST
1931

**Intertype Corporation now**

**announces the completion**

**of VOGUE EXTRA BOLD and**

***Vogue Extra Bold Oblique***

**in sizes from 8 to 30 point**

**Full showings of these sturdy companion faces to the very popular Intertype Vogue and Vogue Bold faces will be sent FREE to you if you will address INTERTYPE CORPORATION, 360 Furman Street, Brooklyn, New York**

**INTERTYPE WIDE TOOTH MATRICES LAST LONG, DROP STRAIGHT, COST NO MORE, AND RUN IN OTHER LINE COMPOSING MACHINES**

A55. Set in Intertype Vogue Extra Bold

# PRINTING EQUIPMENT ENGINEER

TRADE MARK REG. U. S. PAT. OFFICE ESTABLISHED 1910

MAC SINCLAIR, Editor EDWARD PIERCE HULSE, Consulting Editor
EMORY PRATT, Associate Editor
MEIRIC DUTTON, Commercial Pressroom
WALTER H. OGDEN, Newspaper Pressroom
FRED F. UHL, Photo-Engraving

VOLUME 42
AUGUST, 1931
NUMBER 5


## In This Issue


ON THE NECESSITY FOR DUPLICATE CRAFTSMEN 5
*Mac Sinclair*

COLOR PRINTING IN THE DAILY NEWSPAPER - 6
*John W. Park*

OBSOLESCENCE—MAGIC KEY-WORD TO GAINFUL BUSINESS - - - - - - - - - - 7
*Edward Pierce Hulse*

FEATHER'S REFLECTIONS - - - - - - - - 8
*William Feather*

MOTORS—FRIEND OR FOE OF PROFITS - - - 9
*Roy C. Bagley*

LINOTYPE ENGINEER INVENTS NEW KEYBOARD CAM AND ROLLER - - - - - - - - 10

PROGRESS REPORT—NEWSPRINT AND NEWS INK 11
*B. L. Wehmhoff*

PROBLEMS OF DRY MAT MANUFACTURE - - 13
*Jackson Townsend*

PUBLISHER PARTLY TO BLAME FOR HIGH COSTS 15
*T. F. McPherson*

LATEST PRINTING EQUIPMENT MECHANISMS - 19

NEW CATALOGS, BOOKS AND BULLETINS - - 23

WISCONSIN EXECUTIVES' MEETING - - - - 26

GIVES PRESS TO SCHOOL - - - - - - - 27

YOUR QUESTIONS ANSWERED - - - - - - - 28

ESCAPEMENT LEVER GAUGE - - - - - - - 28


### Let others also read The Engineer

After you have read this copy, pass this magazine along to the other men in your organization. They will undoubtedly get helpful ideas from its pages.

Check in left column after reading. Note articles of interest.

☐ *Composing Room Superintendent*

☐ *Superintendent Press Room*

☐ *Chief Composing Room Machinist*

☐ *Superintendent Stereotype Foundry*

☐ *Monotype Department*

☐ *Photo Engraving Department*

☐ *Superintendent Electrotype Department*

☐ *Foreman Lithographing Department*

☐ *Bindery Foreman*

☐ *Production Manager*

☐ *Mechanical Superintendent*

☐ *Manager*

☐ *Purchasing Agent*


PUBLISHED MONTHLY AT
1370 Ontario Street » « CLEVELAND, OHIO
EASTERN OFFICE, 11 WEST 42nd STREET, NEW YORK



W. D. Will, publisher, Copyright 1931 by W. D. Will, Trade-mark Registered U. S. Patent Office; Single copy $.25; subscription price, $2.00 per year. Formerly the Typesetting Machine Engineers Journal. PRINTING EQUIPMENT ENGINEER is fully protected by copyright and nothing that appears in it may be reproduced either wholly or in part without permission.

*There were good reasons for the* I. T. U. *Endorsement of the*

# BLACK & WHITE

***Contrast Matrix***

***"Contrast Provides VISIBILITY"***

## THE ENDORSEMENT:

"*Resolved*: That every effort should be made by line-casting machine manufacturers to make the face of matrices readable to the operator without requiring undue effort to read same. That the black and white matrix is considered indispensable from a humanitarian standpoint, and that the co-operation of all subordinate unions throughout the jurisdiction of the International Typographical Union is recommended in bringing about the general adoption of same and that all local scale committees should endeavor when negotiating scales to incorporate the use of the black and white matrix or any equivalent matrix-coloring process which accomplishes the double object of making the reference character legible and at the same time neutralize the light-reflecting power of the brass reference face."

## THE REASONS:

The Black and White Contrast Matrix relieves eye-strain and promotes efficiency.

## MATRIX CONTRAST CORPORATION

**(Sole Licensees of the Percy L. Hill Black and White Patents No. 1466437, held valid by U. S. District Court, Eastern District of New York. Infringers will be vigorously prosecuted.)**

**33 West 42nd Street, New York**

***The Black and White Contrast Matrix was officially endorsed by the International Typographical Union at the Seattle Convention in 1929 (see Book of Laws, page 109).***

PRINTING
EQUIPMENT
ENGINEER
August, 1931



# On the Necessity for Duplicate Craftsmen

*By* MAC SINCLAIR

A GENERALLY unfailing index as to the executive abilities of a foreman lies in the mobility of his working force. A flexible force makes possible the shifting of men from one kind of work to another in case some of the regulars should be unexpectedly absent from their duties, or, in case a "peak moment" occurs in any department under his jurisdiction.

The training of competent substitutes to fill unexpected vacancies constitutes a vital part of the duties of an executive. The smooth functioning of a force depends to a great extent upon the foreman's ability to so train men that the force will function evenly at all times. The importance of this phase of executive ability is as important where the extra substitute list is ample as it is in the plant which does not afford enough extra or "peak work" to encourage a steady substitute list.

An efficient foreman will guard against "bottlenecks" in the functioning of his force by training men for emergency substitution. He will study their abilities and select those who appear to be capable of doing more than one thing well. In most every force there is more than one man for every kind of work. Most men like a change of work to relieve the monotony of regular routine, especially if they happen to be ambitious and are asked to understudy one of the key men.

The mechanical side of the printing industry requires the services of craftsmen having highly specialized training—it is a skilled calling, if you please. Some of the situations, especially, require the services of men who have become peculiarly facile at doing certain phases of the work. This condition makes it imperative that plenty of competent substitutes be provided so there will be no embarrassment caused by the absence or illness of a regular situation-holder.

It is justifiable for a real craftsman to strive to do his work better and in a more efficient manner than his fellows. When we are so inspired we become of real value to our employers.

In a certain printshop there was a man of natural mechanical skill who knew about all there was to know concerning the uninterrupted production of slugs from linotypes and properly printed papers from the web press. His name was Bill. Bill had a failing—he kept his knowledge to himself. The destinies of the printshop world in which Bill worked revolved around himself and he gloried in the fact. The management treated him in a manner befitting his importance, apparently because of a considerable saving on the payroll. As long as Bill was on the job the papers were promptly printed and put into the hands of the carrier boys every day.

But Bill had another failing. Periodically he would absent himself from his work to imbibe from the cup which makes one forget his work. On these occasions the superintendent had no way of knowing whether the paper would be delayed because the linotypes would not function, or perhaps the press would not print the papers for one reason or another. A frantic search would be made for Bill and if he was in good enough condition (after copious draughts of black coffee) he was brought in to get things going again. As an aftermath of these occasions Bill always swore off—till the next time. Sometimes, after considerable delay, the paper would be printed in spite of Bill. The superintendent finally realized that the place could get along without Bill and that he himself was simply to blame for permitting a condition like this to exist. After several experiences the superintendent protected the plant against future occurrences by training others to operate the machinery. Quite a price to pay to bring

## "Chock Full" Of Valuable Information

61 Stamford Street, London, S. E. 1.
29th June, 1931.

PRINTING EQUIPMENT ENGINEER,
1370 Ontario Street,
Cleveland, Ohio.

Gentlemen:

Many thanks for your letter dated 15th June and the copies of the PRINTING EQUIPMENT ENGINEER for the months of February, March, April, May and June, which arrived this morning. Allow me to thank you most heartily for your kindness in sending these back numbers. We have a great opinion of your journal, which is "chock full" of valuable information. In fact, I know of nothing equal to it.

With kind regards, and again, many thanks for your courtesy.

Yours faithfully,
J. R. RIDDELL, *Principal,*
*London School of Printing.*

home that there is such a thing as organization and that he had been overlooking an executive function which is a very important phase of a superintendent's activities.

No man has a right, nor should he be permitted to think he can hold a one hundred per cent monopoly on his special kind of work. If men hold that state of mind, it is purely because they are permitted to do so by their employers.

It is only human to think that we are able to do a certain kind of work better than anyone else and frequently in departments where substitutes have not been trained, some workmen enjoy a distinction as specialists. They hold a sort of monopoly on the work and perhaps may be paid according to the assumed importance of their specialty.

Most any competent compositor can set the type for a job after it is laid out, or he can duplicate a job for a repeat order which does not require originality; most any operator can handle straight-matter composition, but give some operators run-around composition or tabular matter and they at once appear to be the veriest "dubs in distress." The same applies to a pressman in the matter of makeready, color and register.

Have you ever heard a foreman remark that a certain craftsman is "no good" or is "dumb" all because he had assigned him a different class of work than that to which he was accustomed during the absence of the regular man from the job? In a case like this the foreman is exposing his own lack of executive ability. The usual reaction of the audience is that the foreman himself is to blame for the man's "dumbness" because he has neglected to train capable substitutes against the inevitable emergency when regulars will be absent from their duties.

# Color Printing in the Daily Newspaper

*By* JOHN W. PARK*

*John W. Park, Production Manager, Chicago "Tribune," Tells How Color Pages are Prepared at the "Tribune" and Makes a Prediction Relative to Use of Newspaper Color Pages in the Future.*

COLOR places the daily newspaper within measurable distance of meeting the magazine on the ground of its most effective appeal. We are still behind the magazine in the matter of color advertising. We are ahead of it in a most important factor—the factor of timeliness. On twenty-four hours' notice the *Tribune* can turn out an effective color page that dominates the issue in which it appears as nothing else can dominate it. It is needless to point out the tremendous value of this factor of timeliness to the advertiser. A brilliant idea for smashing home some important sales message need not get cold before it assumes the form which makes it effective.

The first step in the printing of a run-of-paper two-color page is the preparation of the layout. This may be done by the advertiser, the advertising agency, or your own copy and art department. We prefer to have the layout for the page made by our copy and art department because they have learned, through close cooperation with the Production Department, just what allowances or clearances have to be made for register. Register and the depth of color that can be carried on the page, are the two greatest problems encountered in this kind of printing.

After the dummy page has been prepared to the satisfaction of our copy and art and production departments, it is submitted to the advertiser for his approval. The advertiser may send in electros or, if he wishes, we make zincs for him in our plant.

We have encountered two kinds of color pages: One, where the color and black are isolated from each other; and the other, where the color and black are combined in such a way that it is necessary to make two page forms.

Where the color and black are isolated from each other, only one page form is needed. A mat is moulded from this form in the usual manner and enough casts are made to plate the presses for both the color and the black. Half of the curved stereo plates are then

*Abstract of Address given before the Inland Press Association, May 20, 1931.

## Truly, A World of Color

Last April, Colonel Robert R. McCormick, Publisher of the *Chicago Tribune*, in an address before the American Society of Newspaper Editors at Washington, said in part:

"May I say in all seriousness that in a world of color, where houses are colored without and within, where clothes are colored, where table linen and tableware are colored, and even bed linen is being colored today, we cannot afford to plug along behind the procession in somber black and white."

*(Continued on page 29)*

# Obsolescence—Magic Key-Word to Gainful Business

*By* EDWARD PIERCE HULSE*

"THROW him out; he's breaking my heart," said the financier to his butler concerning the obsolescent friend of former days who was depreciating his morale with a hard-luck tale. And, "Throw it out; it's breaking my profit," says modern business to its management when the latter is harboring obsolescent machinery with its piled-up history of hard luck in earnings.

Progressive obsolescence is rightly called the arteriosclerosis of business.

Obsolescence! How we shy at the word! How we try to escape it as though it were a smothering cloud of poison gas! We don't want to consider it. We won't even admit to ourselves the possibility of its application to our plant. We are as touchy about it as we would be of a patch on our pants. And yet it is a golden word in its proper revealments—a magic word for beneficial results. And like all "big stuff," it is simple in the way that it leads to helpful ends.

The good mechanic wants the best tool for the job he has to do. You, in gaining new customers and in holding old ones, should have tools suited to the job—tools as good as your competitors may have and tools as good as may be bought in the market. And the manufacturers are meeting your requirements with some very fine and suitable machinery, and meeting you more than half way.

"Well, what's the use anyway if I haven't got the money?" you say. Of course, if you can't master your business, if you can't run your business, maybe you had better stay out of it. But if you have made it your business to know your business, and if you have run it successfully in the past, you are the man to guide it out of and over the present difficulties and conditions. Financing it is one of your easiest problems, if you will learn the way to go about it. More as to that later.

A clean, efficient plant, built up now on scientific principles, will take you out. (Scientific only means sensible; the shortest and the logical path to an end; the very best methods and processes for your plant to turn out its product.)

Present conditions are man-made! they can be man-changed—by better organization, by better knowledge, and by better application of knowledge. The printing industry has much to learn and to apply that other industries take for granted. It must learn engineering methods and engineering approach to problems; it must learn materials handling; it must learn scientific (or sensible) management; it must learn chemistry so far as it applies to printing materials and machines and processes; and it should learn enough of mathematics to be able to work out problems by accepted formulas. How trembly we are concerning the application of simple mathematics to our business problems. And yet mathematics is the sure way to develop a problem. Mathematics is a language—so the old college professor told the faculty when it was advocating less mathematics and more foreign languages. Mathematics is a universal language, and a most helpful one. More as to this later, also.

The manager who has obsolescent machinery in his plant is not qualified to discourse on the theory that the ways of the fathers were best. Acting out that theory in his practice, his company's stockholders pay the penalty. And society at large also pays a penalty by paying a price to cover this managerial incompetency.

Obsolescent machinery in a plant is evidence that the management has not organized that plant for permanent prosperity. There is no prosperity for those who continue to produce with machines that belong to the scrap heap. The philosophy of the Machine Age is, "Save the man and spend the machine." The manager whose shop contains a single obsolescent machine is not applying that philosophy.

Much of the machinery of the industry belongs on the junk pile outside the plant. The machine-tool industry found that out, after a survey of several thousand plants had revealed 55 per cent of old tools. The automobile industry showed 44 per cent of tools ten years old or older. Since that survey there has been a considerable replacement of obsolescent machinery.

The line that determines the need of machinery replacement is clearly indicated. Any machine that will produce at much lower cost than a machine bought fifteen, ten, or even five years ago, furnishes an adequate reason. Some experts declare that four years of use should be about the time necessary to justify consideration of the possibility of replacement. The need for replacement of a specific machine is determined by the kind of product manufactured on it, the change in design of the product, the requirements for lower cost, and the increase of activity. An improved machine designed to perform the same work in a shorter time or in a better way or at a lower cost has a just economic claim on the shop space filled by an inadequate machine. The new machine of course entails an added investment. Its selection requires care, and its installation consumes time. The present equipment may represent a sizable book value. If the improved design in fact attains economies sufficient to overbalance the cost and the inconvenience of placing it in the shop, its purchase is justified.

Obsolescence properly concerns the economic value of a machine and not its physical condition. Read that again.

*Printing Engineer, New York, N. Y. Member Executive Committee, A. S. M. E., Printing Industries Division.

These economic factors have been stated as follows:

A machine's efficiency in competition with improved equipment for doing the same work cheaper and better.

Its adaptability for economical service, considering possible changes in product which may reduce its efficiency considerably below that of other available machinery.

Its relative efficiency under more stringent requirements of any kind, whether affecting accuracy, productivity, or any other element of attainment.

The quantitative facts in connection with the time element, which is the required production times the unit saving that would be effected by change in equipment.

Stability of product.

Growth of company and demand for product.

Trend of public mind or of market.

Maintenance also is an item not to be overlooked. Maintenance is considerably reduced when an old machine has been removed and replaced with a new one. An old machine may have been constantly repaired, but unless a record has been kept of the accumulated costs of repair, the justification for replacement may not be evident.

Two words that are commonly more used than is obsolescence should be defined—depreciation and amortization. Depreciation is the act of lessening or seeking to lessen the price or value; the reduction of worth; the gradual wearing out of equipment. A qualified manager could calculate depreciation in advance; it deals with the anticipated life of a machine to produce for a given number of hours. Amortization is the extinction of debt, usually by a sinking fund. Wear and abuse do not necessarily enter into this meaning, but rather an anticipated life or fixed time in which to set aside funds to pay the debt. If we knew in advance what the obsolescence figure would really be, amortization could and should be at a corresponding rate.

Obsolescence is always with us, but it does not always appear on our ledgers, or it is consolidated or obscured by entering 10 to 20 per cent of the original installed cost of the machine for depreciation. Depreciation is gradual, and it can be calculated. Obsolescence is hidden—its coming may be sudden. A machine may be on the design board that will obsolete a newly-installed machine in a year or two.

The fear is ever present that the newly-bought machine may be rendered obsolete. Progress demands that machine improvements be welcomed—not viewed with apprehension. The replacement of equipment not fully depreciated is indicative of a progressive point of view. Where such action is based on mathematical formulas, the replacement is justified. To measure obsolescence cost, the following formula may be used:

Let

A =Interest rate, or yearly allowance on the investment
B =Yearly percentage allowance for interest, taxes, etc
C =Yearly percentage allowance for upkeep
E =Yearly cost of power, supplies, etc.
h =Expected number of years of life equipment
I =Initial cost of new equipment
K =Unamortized value of equipment displaced, less its scrap value
X =Percentage of year that equipment will be in use
S =Yearly saving in direct labor cost
$T_a$ =Yearly saving in labor burden
$T_b$ =Yearly fixed charges on old equipment
U =Yearly saving or earning through increased production
Y =Yearly cost to maintain new equipment ready for operation
V =Yearly net operating profit from new equipment in excess of fixed charges.

Apply the formula, for example, to the operation of a machine that roughly grinds the sides of piston rings. This required one operator and a hand fixture, the production being 625 per hour. A new roll-feed grinder was introduced which handled the same work at the rate of 5000 per hour. The values for the parts of the formula are as follows:

| | |
|---|---|
| A =0.06 | X =0.93 |
| E =40 | $T_b$=300 |
| K =100 | C =0.02 |
| $T_a$=14,110 | I =3500 |
| B =0.01 | S =9410 |
| h =5 | U =0 |

## William Feather's Reflections on Business

*William Feather President of the William Feather Printing Co., also contributes to Nation's Business, Philadelphia Public Ledger, New York Evening Post and Chicago Daily News.*

IT is a mistake to assume, as some people do, that a successful business career requires the sacrifice of any good quality.

Business develops a gentleman, and instead of weakening any good quality, it strengthens all his qualities. A real gentleman is not handicapped in business; quite the contrary, a boor succeeds in business or anywhere else, in spite of and not because of his boorishness.

Some of the finest gentlemen I have ever known are highly successful business men. They have conducted themselves as men of honor and culture all through their lives, and in the brisk competition of modern life their very integrity, courtesy, and humanity have insured their supremacy.

Stating the formula by the values instead of by the symbols, we have:

$Y=3500\ (0.06+0.01+0.02+0.20)=\$1015$

$V=(9410+14{,}110-40)\times 0.93+300-1015-100\times(0.06+0.20)$

Performing the operations, we find that V=$21,095, yearly net operating profit. This example is given merely to show the method of applying a formula to the solution of a problem in obsolescence. This example is an extreme case. No one would willingly suffer such a loss, but such cases do exist—and persist. Their elimination lies in familiarity with new machines and methods, comparison with processes now in use, and systematic evaluation of such comparison.

One great trouble with printers is that they cannot talk to their bankers. Statements made up for consideration when asking loans, even for printing concerns that are justified in asking credit, are seldom convincing or even properly prepared, speaking from the standpoint of the bank's loan committee. A proper setup of the possibilities of better profits through expenditure for better machinery will gain almost any banker's consideration. One of the most successful printing efficiency concerns of former days had the expresident of a bank on its staff just to aid clients in preparing a proper statement of financial condition and prospects on which to approach the bank.

Make a survey of your plant; determine the obsolescent machines; put the kibosh on your octopuses; make your plant as clean-cut as the sword of Excalibur; and then you will be ready to go forth and mow them down.

Installation of better equipment can easily be made in times such as we are now going through, and of course better deliveries can be secured than in rush times. Installations made now would be ready ahead of the next period of activity and would "earn their keep" and greatly increase the profits over the whole of the next prosperous cycle.

There are enough logical reasons to cause plant owners to be liberal with equipment orders, and some wise ones are so doing.

# Motors—Friend or Foe of Profits

*By* Roy C. Bagley

Power consumed by printing presses varies as to the size, type and speed. Features such as automatic feeders and special extension deliveries add to the friction load of the machine and must be considered when the motor drive is purchased. There is no fast rule for computing the H. P. requirement of a press from its size alone due to the variety of mechanical ideas used to attain the ultimate result of delivering the printed sheet. Actual power consumption of a certain size and type of press can only be determined by test.

Considerable difference will be found in the test made for power consumption on a newly-erected press and the test made on this same press after it has been in operation for several months. This, of course, is true of any new piece of machinery; however, the point that should be borne in mind is that the motor equipment that operates this press must be large enough to start and run it in its new condition. It is also advisable to have some adjustability of the controller resistance so as to keep the range of control correct for the reduced load of the press as it limbers up.

There are various reasons why starting a press requires more power than running it. Static friction is a large factor; that is, getting dead weights into motion, stiff spots created by bringing cam actions into motion, compression cushions of the flat bed types, impression of the cylinder to bearers and the weight of heavy moving parts that when not in motion tend to destroy the oil film between the bearing wall and the shaft by pressing out the oil film. It has been proven that about twenty-five per cent of the starting torque of a motor starting under conditions of a tight belt at short centers is lost due to the squeezing out of the oil film between the shaft and bearing sleeve, while a motor equipped with ball bearings and operating under the same condition was able to give its full torque development to the application. The same condition applies to sleeve bearing construction in presses where heavy weights are applied to bearings. The use of alternating current motors in the printing and allied industries is becoming more general every day. One of the large press manufacturers that sells motor equipments with its machines finds that motor requirements are split about even as to A. C. and D. C.

Variable speed A. C. motors and convenient, reliable control have been available for a number of years; however, applications should not be made by persons experienced in this business although they are well qualified in the electrical trade. Preferably this should be taken up with a concern that has made a specialty of the business.

Automatic control of machinery, which is becoming more popular every day, is especially desirable on printing presses in view of the necessity of having automatic stopping and slowing down, which features can be secured in no other way. Automatic control gives added features, such as inching, forward and reverse. It also affords control of the press from any number of stations located for the convenience of the operator.

In applying A. C. motors to presses, in some instances it will be noted that larger horsepower ratings

are used than if the application were for D. C. This is not an indication that the A. C. motor is weaker than the D. C. one, as a one H. P. motor on either service will deliver the same amount of H. P. energy. The difference is accounted for in the following manner: The A. C. motor rating is maximum H. P. at maximum speed which cannot be increased, while the D. C. motor rating is normal H. P. at normal low speed which can be increased by field control and which increases its H. P. output. This puts it approximately equal to the A. C. motor rating.

Annual maintenance costs on A. C. installations are considerably less than they are on D. C. installations because of the widely different mechanical design and electrical characteristics.

Hundreds of thousands of dollars are spent annually by the printing industry for more modern machinery for production and additional thousands of dollars for accessories such as automatic feeders and special deliveries to get the maximum of production from these machines, but most generally the electrical equipment that operates these valuable machines is given only secondary consideration. Your electrical equipment is the heart of your printing plant; when it is down the press is out of service; therefore, it should be given as much consideration as your press.

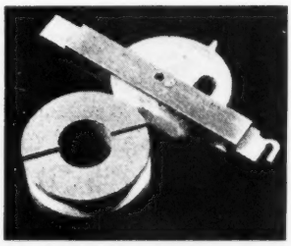
To begin with, the best equipment should be purchased. It should then be cared for by a responsible electrician. I do not mean care like a mother gives her child, but reasonable care. Controller contacts should be kept clean and lubricated occasionally, and see that worn parts are renewed. The motor, if of the sleeve bearing type, should have the oil well level inspected bimonthly and care should be exercised in filling them. Too much oil is as bad as too little; the excess may get in the windings and deteriorate the insulation, cause brushes to stick in their holders; thereby causing sparking and burning of commutators or slip rings. In the case of ball bearing motors, greasing of the bearing twice a year is sufficient and it should be applied with reason, as too much grease will pack the bearing tight and cause heating.

Heating of the motor bearings should not be confused with heating of the motor frame. In transforming electrical energy to horsepower to operate the press some of this energy is dissipated in the form of heat. In the design of a motor this heating is taken into consideration and a motor operating under normal full load conditions is rated at 40 degrees centigrade above the normal room temperature. The room temperature, of course, is read on a centigrade scale, and taking for example a temperature that you would read on a Fahrenheit scale of 86 degrees, the centigrade reading would be only 30 degrees. The motor should come up to 40 degrees centigrade above room temperature, which would bring it up to 70 degrees centigrade or about 158 degrees on the Fahrenheit scale. This would seem high to your touch, but is well within the rating of the motor and will not harm the insulation.

When speed regulators are used with motors to change the speed of your press the effect of cutting resistance in the motor circuit is to dissipate some of the energy that would normally go to the motor to give its full speed and in dissipating this energy in the resistor it naturally goes off in the form of heat. Resistance units, of course, are brought to a much greater temperature than motor windings, and it should cause no alarm unless, of course, they are brought to such a high temperature that they glow.

---

## Linotype Engineer Invents New Keyboard Cam and Roller



*View of Sennett new style keyboard cam and section of grooved steel cam roller. This device is intended to be applicable to either Linotypes or Intertypes.*

Sylvester J. Sennett, chief composing room machinist of the *Chicago Tribune,* is the inventor of a new style keyboard cam roller and cam for use in Linotype and Intertype machines, both of which are intended to displace the conventional rubber roller and brass cam.

On a test machine equipped with the new type steel keyboard rollers and cams at the *Tribune,* Leon B. Finout, operator, has maintained an average of 13,600 ems per hour of 5, 6 and 7-point composition, 12½ ems wide for the past year.

In place of the rubber rollers, two steel rollers are mounted in the keyboard. The rollers are about 1 3/16 inch o. d. and each has tapered or V grooves in its periphery, suitably spaced for each cam. The radius of the cam is like the standard keyboard cam. The point of contact of the cam in its groove in the roller is 1 1/16 inch, which is about the same as the standard cam roller. The bottom of the V groove is deepened by cutting a square slot so that clearance will be provided for passage of the stop pin in the edge of the cam. The diameter of the roller at the bottom of the slot is ¾ inch.

A feature of the new device is that each cam carries its own stop pin to arrest rotation after each revolution of the cam. This eliminates the customary stop strip at present applied. The top part of cam yoke frame is utilized as a bearing bar, to stop the cam rotation.

Some things the new device is intended to accomplish are as follows: Provides a more accurate matrix delivery by reason of positive two-contact driving of the cam; periodical replacement of rubber rollers is avoided; stop strips and consequent down-time for repairs to strips are eliminated.

# Progress Report—Newsprint and News Ink

*By* B. L. WEHMHOFF, *Technical Director**
D. P. CLARK, *Associate Chemist* D. H. BOYCE, *Research Associate*

*(Concluded from Last Month)*

THE effect of the amount of grinding on the viscosity and time for penetration of test news inks was shown in the report given at the Fourth Mechanical Conference. Further tests were made with a DuNuoy interfacial tensiometer to determine the effect of the amount of grinding on the surface tension of the inks. It was found that the surface tension increased with the amount of grinding in a similar manner of the viscosity, that is, considerable increase on the second grinding with less increase after each of the following grindings.

This led to the conclusion that perhaps samples of commercial news inks which penetrated excessively could be improved by a second grinding. Several samples of such inks were reground, and it was found that in every case save one the viscosity was increased and penetration decreased by the second grinding. The one exception was that of one ink which to our knowledge had been ground twice by the manufacturer and which was the only one which did not show considerable "strike through" when received.

### SURFACE-TENSION MEASUREMENTS

Surface-tension measurements were made on commercial and special samples of news inks. In most instances it was found that consistency and surface-tension measurements were closely related.

The following effect of several factors on the surface tension of inks was noted:

1. Within the pigment percentage range of commercial inks, the surface tension increases rapidly with the increasing percentages of pigment, as also does the viscosity.
2. The addition of resins, gums, etc., to the ink increases the surface tension and also the viscosity.
3. The surface tension of inks is increased considerably by the addition of toners and dyestuffs, with the exception of a few instances where both viscosity and surface tension were decreased.
4. With few exceptions the surface tension of inks (alike save for the use of oils of different viscosities) varies directly with the viscosity of the oil used.

It seems probable that with certain restrictions the surface tension measurements could be used as a rapid measurement of the consistency of news inks.

### CHANGES IN INK ON STANDING

Tests made on several commercial news ink six months after manufacture showed that while the rate of penetration had not changed appreciably, the viscosity had decreased considerably. No explanation has been found for this fact, save that the change may be due to some rearrangement of pigment particles in the oil. It was noticed that news inks made in the Government Printing Office usually increased slightly in viscosity during the first few days followed later by a decrease.

### FACTORS INFLUENCING PRINTING QUALITIES OF NEWSPRINT PAPER

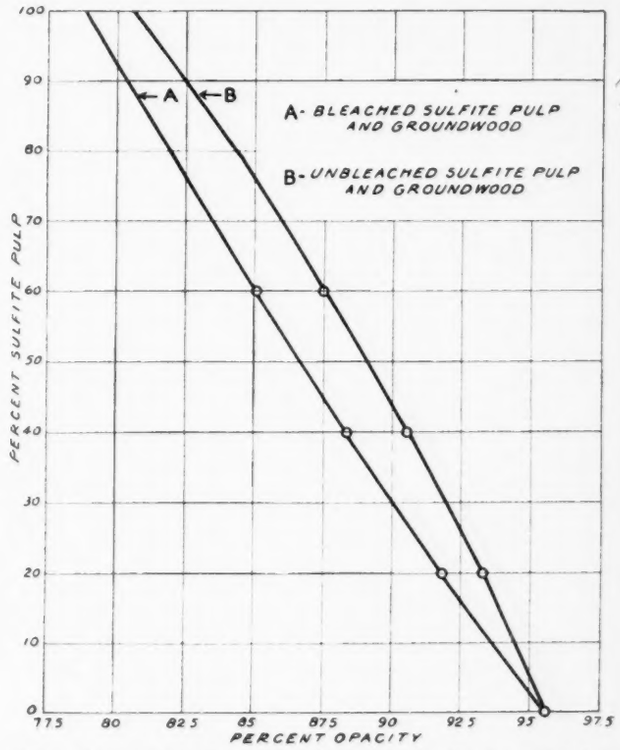
A study was started covering the various factors which might influence the printing qualities of newsprint paper. The results are incomplete, but it is felt that progress has been made.

Among the points considered are the following:

1. Surface of the paper.
2. Pulp composition of the paper.
   *(a)* Percentage composition.
   *(b.)* Fiber length.
3. Calendering of paper.
4. Volumetric composition of paper.
5. Thickness and compressibility of paper.
6. Sizing and filler in paper.
7. Transparency of the paper.

### MEASUREMENT OF PAPER SURFACE

All methods of surface measurement described in paper literature, which did not involve elaborate apparatus, were tried out. Several tentative methods were also evolved, but none of the methods gave satisfactory




*Effect of percentage of sulphite pulp on the opacity of newsprint, as measured by the Bureau of Standards' opacimeter.*

*Government Printing Office. Abstract of paper read before Mechanical Conference, Washington, D. C., June, 1931.

results. Further work is being done to devise a method to aid in the determination of the surface characteristics of satisfactory newsprint.

### EFFECT OF VARIATION OF PERCENTAGE OF SULPHITE PULP

Through the courtesy of Dr. George K. Burgess, Director of the Bureau of Standards, eight small rolls of experimental newsprint were made on the Bureau of Standards papermaking machine. These papers contained 20, 40, and 60 per cent unbleached sulphite, with the remainder ground wood; and 20, 40 and 60 per cent bleached sulphite with the remainder ground wood. The seventh sample was 100 per cent ground wood. Since a sufficient amount of pulp was available, a second roll of the 100 per cent ground wood paper was made later. The stock containing 60 per cent of sulphite pulp was passed through a jordan refiner before being run to the paper machine; the other lots were mixed in the beater until uniform.

No rosin size was used, but alum was added to the extent of 10 pounds per ton of pulp. The water at the head box had a pH value between 6 and 7. Dupont "Paper Blue R Concentrated" was added to each furnish to give the paper a blue-white color, but the results were not as good. The ground wood was of short fiber length and contained considerable wood flour. Its color was a dull gray. The unbleached sulphite pulp was considered somewhat dirty.

The results of physical tests made on representative samples of each variety of newsprint will be found in Table No. III. These tests were made under atmospheric conditions of 50% relative humidity and 70° F.

The following conclusions are drawn from physical tests on the eight special samples of newsprint:

1. Increase in the percentage of sulphite pulp increases the tensile and bursting strength of newsprint, but bleached sulphite does not increase the strength to the same extent as unbleached sulphite pulp.

2. Increase in the percentage of sulphite pulp apparently increases the basis weight for a given thickness.

3. Increase in the percentage of sulphite pulp decreases the ash content of the paper, although the ash content is higher when bleached pulp is used than is the case if unbleached pulp is used.

4. The opacity of paper decreases as the percentage of sulphite pulp increases. Ground wood pulp is most opaque, unbleached sulphite next, and bleached sulphite most transparent.

5. The gloss of the paper increases slightly with the increase in percentage of sulphite pulp. Bleached sulphite yields a lower gloss than corresponding amounts of unbleached sulphite pulp.

The opacity readings shown in Table III were supplemented with photographs taken through unprinted papers and through the sheets after being printed with a thin film of oil. The photographs confirm the above conclusions to the effect that the transparency of paper, both before and after printing, increases with the increase in percentage of sulphite.

Examination of drawouts made with a standard news ink on each of the eight papers led to the following conclusions:

1. The higher the percentage of ground wood, the more rapidly the ink is absorbed by the paper.

2. Newsprint containing bleached sulphite absorbs ink more readily and more evenly than does newsprint containing an equal percentage of unbleached sulphite.

3. With increasing percentages of sulphite pulp, there are an increasing number of fibers which are not coated with pigment particles.

4. The penertation, as observed from the opposite side of the sheet two days after the draw outs were made, is least in the paper made from 100 per cent ground wood, and increases with the per cent of sulphite. In each case the papers made with unbleached sulphite show more penetration than corresponding papers containing the same percentages of bleached sulphite.

These tests indicate that from the printing standpoint alone, the most suitable sheet would contain 100 per cent ground wood, provided such a sheet would possess adequate strength.

TABLE III

| Composition of pulp furnished | Composition by fiber count | Test No. | Tensile Strength | | Stretch | | Oil Absorption | | Thickness | Weight 24 by 36-1000 | Bursting Strength | Ash | Opacity Bureau of Standards tester | Opacity Densometer reading | Gloss | No. of Bureau of Standards machine run |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Machine | Across | Machine | Across | Wire | Felt | | | | | | | | |
| | | | *Kilograms* | *Kilograms* | *Pct.* | *Pct.* | *Seconds* | *Seconds* | *Inch* | *Pounds* | *Points* | *Pct.* | *Pct.* | *Seconds* | *Pct.* | |
| 100 per cent ground wood | 100 per cent ground wood | 61529 | 2.62 | 2.11 | 1.4 | 2.1 | 98 | 90 | 0.0033 | 61.5 | 10.6 | 1.95 | 93.6 | 42 | 22.9 | 850 |
| 100 per cent ground wood | 100 per cent ground wood | 61536 | 3.29 | 2.21 | 1.3 | 1.6 | 115 | 88 | .0032 | 66.9 | 12.0 | 1.94 | 95.6 | 40 | 23.4 | 857 |
| 80 per cent ground wood, 20 per cent unbleached sulphite. | 75 per cent ground wood, 25 per cent unbleached sulphite. | 61530 | 3.95 | 2.41 | 1.5 | 2.2 | 80 | 80 | .0030 | 64.3 | 13.3 | 1.37 | 94.2 | 48 | 23.4 | 851 |
| 60 per cent ground wood, 40 per cent unbleached sulphite. | 63 per cent ground wood, 37 per cent unbleached sulphite. | 61531 | 5.03 | 2.77 | 1.3 | 2.2 | 95 | 86 | .0030 | 72.0 | 19.2 | 1.10 | 91.3 | 44 | 24.1 | 852 |
| 40 per cent ground wood, 60 per cent unbleached sulphite. | 46 per cent ground wood, 54 per cent bleached sulphite. | 61532 | 6.67 | 3.39 | 1.4 | 2.3 | 252 | 264 | .0029 | 69.1 | 24.7 | .75 | 85.4 | 147 | 24.5 | 853 |
| 80 per cent ground wood, 20 per cent bleached sulphite. | 70 per cent ground wood, 30 per cent bleached sulphite. | 61533 | 2.87 | 1.73 | 1.5 | 1.9 | 61 | 57 | .0030 | 59.1 | 9.9 | 1.63 | 89.7 | 29 | 22.9 | 856 |
| 60 per cent ground wood, 40 per cent bleached sulphite. | 60 per cent ground wood, 40 per cent bleached sulphite. | 61534 | 3.50 | 2.20 | 1.2 | 2.6 | 70 | 73 | .0031 | 69.4 | 12.8 | 1.29 | 89.1 | 33 | 23.0 | 855 |
| 40 per cent ground wood, 60 per cent bleached sulphite. | 41 per cent ground wood, 59 per cent bleached sulphite. | 61535 | 4.23 | 2.39 | 1.5 | 2.5 | 68 | 70 | .0029 | 69.4 | 16.7 | 1.02 | 86.0 | 43 | 23.3 | 854 |

# Problems of Dry Mat Manufacture

*By* JACKSON TOWNSEND*

*Jackson Townsend, President, Wood Flong Corporation, Explains Some Problems of the Dry Mat Manufacturer, and Asks Closer Cooperation Between User and Maker.*

I CANNOT conceive of any greater problem which might confront the manufacturer of dry mats than to construct a paper dealing with any phase of this subject on which all manufacturers of dry mats would agree. It will, however, by my very serious effort to present only a consensus of opinion and ideas in which I believe my contemporaries will concur.

I am confident that a great many of your problems are due to your lack of understanding of the production of the material you are using and I know that a great many of our problems are due to ignorance regarding the use of the material we are producing. It is with the hope that I may be able to give you some general ideas to dry mat manufacturing procedure, thereby creating a desire for a more intimate knowledge of the structure of a dry mat that I present this paper. If we, the manufacturers, and you, the consumers, can get together on a basis of mutual understanding of our interlocking problems and of mutual cooperation for their elimination we would in a short time accomplish more and advance further toward the goal for which we are both striving, viz, the production of better stereotype plates, than we will in years of individual effort.

### FOUR PHASES OF MANUFACTURE

It is my purpose to deal with the problems of dry mat manufacture in four phases. First, the general qualities which we strive to incorporate in a dry mat. Second, our efforts to obtain these qualities through the selection of raw materials. Third, our treatment of these raw materials in an effort to bring out the various qualities in proportion to their importance. And fourth, the finishing processes.

### THE PERFECT DRY MAT

Let us consider for a moment a perfect dry mat. Such a mat would have to be 100% plastic. It must take an impression carrying the exact contours of the type form and maintain these contours through a process of shrinkage; through a series of intense heating and chilling processes; through a constant flexing and unflexing and must give identical results in the hands of a thousand different men through the medium of almost a score of different machines. It must be at once soft enough to take one or hundreds of impressions from the type form without damage to the type matter and after drying have sufficient resistence to require the minimum amount of packing. It must have minimum shrinkage in one direction and a maximum and variable shrinkage in the other direction in order to satisfy the varying demands for newsprint saving. It must even have no shrinkage for advertising distribution. It must contain moisture enough to produce the shrinkage required and yet give up that moisture in 30 to 45 seconds without any uneven shrinkage which would cause buckles or warping or blistering. It must do a great many other things which you appreciate perhaps better than I do—and after all, we're talking about a piece of paper. And, because of the thickness required necessarily a rather crude piece of paper at that.

### INDIVIDUAL QUALITIES

It is not a very difficult task for a dry mat manufacturer to produce a mat which will take an unlimited number of casts. It is a simple matter to make a mat with a smooth face. We understand how to increase stayback; how to augment plasticity and molding qualities; how to produce a mat which will enable you to get all the "sock" you want without fracturing on the bolsters. We can give you much or little shrinkage and we can eliminate buckles, warping and blistering. We can incorporate in a dry mat any one of the other thousand and one different requirements you demand but to give you all of them in one and the same mat is our problem. Frankly, I do not believe that any of us know how to do this at the present time and I doubt if any of us will ever produce a perfect mat. With your cooperation we merely hope to approach that ideal.

It may be that you can help us through the standardization of your methods in handling a dry mat and through an agreement among yourself as to your demands in regard to these various phases. If you would all agree to the amount of shrinkage you demand, the sacrifices you are willing to make in one quality in order to enhance another and discuss with us freely and frankly just what you want, it is probable that we could not satisfy you absolutely but we could come a great deal nearer to it than we can under present conditions.

### PROBLEMS IN SELECTION OF RAW MATERIALS

When we come to deal with the selection of raw materials we are face to face with a multitude of problems and possibilities. This field is at the same time a morass of bewilderment and meadow of hope. Not only are there many different fibers and filling materials from which to make a choice but each class of fiber may be varied in a hundred ways by the soil from which it is selected, the method of cooking and various selective processes. Then again, most producers do not use one grade of fiber only but rather a mixture, and again the possibilities multiply, no end. We must not only decide which fibers to use and how they should be prepared but what combinations and in what proportions. You can, therefore, see that it is possible to run into thousands of modifications with the same principal ingredients, each one giving a dry mat with different characteristics. Unfortunately our problem does not end when we have once selected the combination of fibers we intend to use. So delicate is the texture and qualities of a dry mat and so susceptible are they to change on the slightest variation of the conditions under which they are manufactured that it is necessary to guard most carefully against the slightest variation in the raw materials received.

*(Continued on next page)*

*President, Wood Flong Corporation. Abstract of paper delivered before A. N. P. A. Mechanical Conference, Washington, D. C.

CAUSES OF VARIATIONS

When you find occasion to complain that there is variation in certain characteristics of your mats from one case to another or from one period to another, we are in full sympathy with you because we have often gone to our manufacturers of fiber with the same story. The nature of the soil and climate in which the fiber is grown, the slightest variation in strength or temperature of the cooking chemical, the total time in which the cooking liquor is in contact with the fiber before being washed away and the efficiency of the washing process; all of these things produce differences which may be difficult to detect in the fiber itself and yet which transmit themselves sometimes in amplified form to a dry mat. We must use every possible precaution to secure uniform materials and then constantly watch these materials through all the manufacturing processes, altering these processes from time to time as we find it necessary in order to bring out uniform qualities in the dry mat. I have submitted samples of sulphite pulp to reliable chemical laboratories for identification and classification and received a report that as far as could be determined, the two pulps were identical. Yet under identically the same treatment, these two pulps would yield dry mats of such different qualities that they could not be used simultaneously in the same newspaper foundry. This variation may be overcome in the refining process and uniformity maintained in the mats. That, however, is one of our serious problems.

## II

In discussing the various fibers and filling materials and their reactions on the qualities of a dry mat, I shall consider only those particular raw materials which I have found in considerable quantity in the various mats that I have analyzed and which I know have been used to a considerable extent either experimentally or commercially.

BASIS OF LARGE PERCENTAGE OF DRY MATS

Wood fibers produced by the acid process usually from spruce, hemlock and other coniferous woods and known as sulphite pulp, are the basis for a large percentage of the dry mats produced. Some mats are practically all sulphite, some have various other fibers added, but nearly all contain more or less sulphite. In discussing the characteristics which sulphite pulp gives to a mat I must again refer to the fact that there are available on the American market today scores of different brands and types of sulphite, each one of which would give different characteristics to a dry mat. The results depend on the selection of wood, the length of the cook, circulation of the cooking liquor and the severity of the chemical treatment. In general, however, the sulphite fiber is long and flat and gives body to a mat and makes it compact and plastic. It is only moderately subject to hydration and can be split and cut to a degree of fineness which will permit the necessary close formation demanded by a dry mat. Whether from sulphite alone all the characteristics required in a good mat may be obtained is a question which is subject to debate but apparently most of the manufacturers are in agreement that sulphite pulp provides a good foundation on which to build these required characteristics.

Wood fibers produced by the soda or alkaline process are derived from poplar and gum woods. These fibers are short and have a tendency to bulk and soften the mat. To the best of my knowledge, soda pulp is not used in any considerable quantity by the dry mat producers in this country.

QUALITIES OF RAG FIBER

There are so many kinds of rag fiber that it is very difficult to specify any general characteristics applicable to this material. When properly refined and used in not too large proportions it has many desirable qualities. One of the chief difficulties lies in getting a constant and uniform source of supply.

STRAW AND ESPARTO

Straw and Esparto were formerly used in nearly all foreign mats but are being discarded of late almost entirely. These fibers give depth to a mold and exceptional casting qualities but make a hard mat which is subject to buckles and uneven shrinkage.

KRAFT PULP

Kraft pulp is undercooked fiber from coniferous woods. Mats containing even a small percentage of Kraft are usually rough and coarse in texture and have a distinct tendency to chill the plates.

OTHER SOURCES OF FIBER

Rope, Manilla, Jute and Hemp, all give long, strong fibers which make hard, tough mats with good casting qualities, but too hard and with a tendency toward over shrinkage and buckles. Any kind of fiber may be obtained through the selection of old papers but the source of supply is so uncertain and so many variables are encountered that most dry mat manufacturers have discontinued their use.

VARIATIONS IN CLAY

In the selection of Clay we are again confronted by the fact that there are many sources of supply each differing not only from the other but varying within the individual source from time to time. It is much easier, however, to detect these variations and adjust to meet them than is the case with pulp. Clay, being used entirely for plasticity, should be as colloidal and finely divided as possible.

TALC IS BEING DISCARDED AS FILLER

There has been considerable talc substitution for clay. Under the present method of mill conditioning, it is more difficult to retain moisture in a talc-filled mat than in one in which clay is the filler. Since manufacturers have discovered other and better means for obtaining casting requirements talc is becoming less popular as a filling material.

*(Continued next month)*

---

# 34th Annual Convention of I. A. E.

The International Association of Electrotypers will hold the 34th annual convention at Hotel Cleveland, in Cleveland, Wednesday, Thursday and Friday, September 23, 24 and 25, 1931. A large attendance is expected because of the central location and the many important subjects now before the industry. The registration will probably pass the 200 mark.

An Exposition will be held in connection with this convention. Plans to make it impressive and complete have been made. The Exposition will not open until 1 p. m. each day in order not to interfere with attendance at the business sessions of the Convention.

A number of features are provided for the program. A couple of nationally prominent men will address the group and several speakers from the industry will discuss the general problems confronting the Association. Committee reports will be concise and full of thought. Round table discussions on Costs, Research Problems and Trade Relationships will be held.

The sessions will be from 10 a. m. until 1 p. m. daily. Entertainment and social features will be provided to furnish relaxation and enjoyment.

Ralph Schwarz, of the Ace Electrotype Co., Cleveland, is chairman of the Convention Committee. Ray Taylor, of the Art Electrotype Co., is chairman of the Exposition Committee.

A very large attendance and most successful Convention is expected to result from the hard work and careful planning of the Convention Committees.

# Publisher Partly to Blame for High Costs

*By* T. F. McPherson*

*(Concluded from last month)*

The character of the newspaper has little to do with production results. The spirit and efficiency of the news and editorial department more often determine the volume of news production, given capable composing room supervision, than any other factor. With lack of initiative and a sluggish attitude toward the job on the part of newsroom employes, copy hooks are inadequately supplied, feature and Sunday copy that could not be improved by delay tie up machines when live news for the daily should be on the hooks. The spirit of such an editorial and news staff communicates itself to composing room employes and a slowing down of the entire production department often results.

With a thorough understanding of the various causes as stated in the foregoing, contributing to the total difference between the payrolls of these two composing rooms, it is not difficult to understand why page cost comparisons are not reliable. The payroll comparisons are shown in table IV.

Composing room A from the viewpoint of economic conduct as compared with average composing rooms, was almost perfect. Yet there was room for improvement but production could not possibly be increased unless the publisher would agree to enforce a display advertising copy dead line. It was suggested to the publisher that the following economies could be effected if he would absolutely enforce reasonable deal lines as follows:

For the evening daily, 6:00 p. m. day preceding date of publication.

For the morning daily, 1:00 p. m. day preceding date of publication.

Sunday, 10:00 a. m. Saturday for sections closing after 8:00 p. m. Saturday night.

### PUBLISHER THOUGHT IT IMPOSSIBLE

The publisher was very doubtful that the foregoing program could be successfully carried through. He had visited about and knew how fortunate he was in respect to faithfulness and loyalty of his employes. He did not realize that often it is more simple to speed up an efficient body of workmen than to initiate a will to work in a composing room that functions like a high-priced job shop.

Foremen were obliged to pinch hit as proof readers. Supplying one extra proof reader and a copy holder relieved that condition although it did not supply perfection and the display dead line enforced, worked wonders. This writer is fully cognizant that many production managers will question the practicality of the foregoing. 300 inches of display assembled in an eight-hour situation, impossible. It is far from impossible in the average run of copy even though half of the total is of intricate design. The answer lies in two elements. First, the orderly and dependable flow of guts from the linotypes to the ad alleys with *clean* proofs. Second, the enforced dead line makes possible the assignment of complete ads to individual workers, eliminates the necessity of placing two and three ad alley men at work on one big ad, under which condition the executive can not easily trace the accomplishment of individual workers, nor eliminate the time wasted by these men waiting round for linotype takes.

### POTENCY OF LEADERSHIP

Leadership has much to do with final results. If the publisher happens to be a man of personality who makes it a point to pass through his composing room once or twice daily, nodding pleasantly to the rank and file, indicating that he knows they are part of the works, it helps a lot. Superintendents and foremen find a more ready response from the workers in such circumstances. There are some executives who associate dynamic action with confusion. The two often are seen in close association but usually in composing rooms where nothing that is seen can be believed.

### ECONOMIES SUGGESTED FOR COMPOSING ROOM B LINOTYPE PRODUCTION

The superintendent and foremen of shop B were men who had been linotype operators, ad alley journeymen, make-up and ad alley foremen previous to becoming higher executives. Knowing from experience the possibilities for linotype production they preferred that the standard be set up on the ems basis rather than the line basis. Linotype production as revealed by the survey, was 4,894 nonpareil ems per hour.

*Ad Alley Economies*—34 per cent in setting and assembling be overcome, a standard of 250 column inches to be enforced, per situation daily.

| | | |
|---|---|---|
| 34 per cent of 2,272 labor hours at $1.00 hour | $772.00 | |
| Estimated to be accomplished, 6 months | 450.00 | |
| Estimated to be accomplished, 12 months | 700.00 | |
| Total constructive ad alley economy | | $700.00 |
| Analysis of store proofs for month revealed to superintendent that time being charged to this operation was excessive. | | |
| One ad alley situation ordered killed as a consequence | | 208.00 |
| Total estimated monthly saving | | $1,383.00 |
| Annual saving | | $16,586.00 |

*(Continued on next page)*

TABLE IV—PAYROLL COMPARISONS

| | | |
|---|---|---|
| B's payroll exceeded A's | $10,950.00 | |
| If page cost comparisons were accurate barometers, B's payroll would have exceeded A's by | 3,990.00 | |
| Difference | $ 6,960.00 | |
| *A's Advantages or plus Factors* | | |
| Lower average hourly wage rate .11 | | $1,362.00 |
| No local display reconstruction beyond initial proof | | 360.00 |
| Two proof readers and two copy holders (Undermanned; newspaper quality suffered) | | 1,512.00 |
| Total | | $3,234.00 |
| *B's excess costs due to lack of production* | | |
| 5 Linotype Operators | $ 1,080.00 | |
| 6 Ad Alley Journeymen | 1,296.00 | |
| 2 Make-up Men | 432.00 | |
| Total | | $2,808.00 |
| Total plus and minus factors | | $6,042.00 |
| Difference between two payrolls | | 6,960.00 |
| Unaccounted for by above | | $ 918.00 |
| B was obliged to maintain 2 make-up situations in order to compensate for News Room delinquencies | $ 432.00 | |
| B News linotype operators excess payroll because of sluggish news copy flow | 432.00 | |
| Wage excess in composing room traced to news room laxities | | $ 864.00 |

SCHEDULE OF ECONOMIES ESTIMATED FOR NEWSPAPER "A"

| | Day Force | | Night Force | | |
|---|---|---|---|---|---|
| | Situation | Saving Monthly | Situation | Saving Monthly | Saving Annual |
| Linotype Operators | 1½ | $328.00 | 1 | $232.50 | $6,726 |
| Ad Alley Journeyman | 3 | 506.25 | 1 | 224.75 | 8,772 |
| Ad Alley Apprentice | 1 | 41.75 | | | 501 |
| Total | 5½ | $876.00 | 2 | $457.25 | $15,999 |

Situation Increases Recommended

| | |
|---|---|
| 1 Proof Reader Journeyman | |
| 1 Copy Holder Apprentice | |
| Amount of increase, Annual | 3,106 |
| Net Economy | $12,893 |
| Linotype production, 8-hour situation | 39,152 ems |
| Standard set up | 49,086 ems |
| Deficiency | 9,914 ems |
| Percentage | 20.05 |
| Total news operator labor hours | 4,783 |
| Twenty per cent deficiency equivalent (hours) | 956 |
| Monthly saving providing standard could be attained (20 per cent increase) | $ 956.00 |
| Saving by reason of 10 per cent increase in linotype production—monthly | 475.00 |
| Yearly | $5,700.00 |

*Newspaper Analyst.

During the period of this survey setting and assembling in the ad alleys was increased by one shift, from 164 to 270 inches per 8-hour situation.

One of the chief among expenses in the newspaper business is labor turnover. The chief service that an analyst can render to a publisher is the service of helping to make men more useful, of greater consequence in the complete picture. Hence psychology plays a large part in the work. Workmen who have been producing 50 per cent of a fair day's work for some years with the evident approval of foremen and owner cannot be expected to accept the statement of a stranger that they should immediately double their output. Nor can a foreman be expected to attain maximum standards except over a period of time. Habit is too strong, resistance natural among workers, when the criticism comes from without.

Therefore it is sometimes politic to set up a standard lower than could be justly expected. It must be understood that it is in the viewpoint of the workmen that must be changed and if a foreman is expected to overcome the habits of years in periods of weeks or even months, discouragement is inevitable. It is far better to improve conditions slowly, making more able and useful men of those employed than to insist upon violent action and probably lose promising executives and risk the temporary disorganization possible. Improvements gradually made, keeps intact existing schedules and heightens the morale as well.

TABLE V—COMPARATIVE SITUATIONS AND PRODUCTION FIGURES

(One Month Period)

| | NEWSPAPER X Morning Daily & Sunday Average | Y Morning Daily & Sunday Columns | Z Evening Daily & Sunday (31 Days) |
|---|---|---|---|
| Non Set News | 27 | 34 | 26 |
| Lino Heads Set | 10 | 18 | 22 |
| News Body | 60 | 102 | 114 |
| Total Linotype Set News | 70 | 120 | 136 |
| Hand Set News | .... | 4 | 6 |
| Total News Content | 97 | 124 | 142 |
| Invisible Linotype News Production | .... | 51 | 17 |
| Total News Production | 70 | 175 | 159 |
| Advertising Published | 84 | 242 | 254 |
| Invisible Advertising Production | .... | 20 | 6 |
| Advertising Published Plus Invisible Production | 84 | 262 | 260 |
| Total Columns Published plus Invisible Production | 181 | 471 | 445 |
| Columns Published | 181 | 400 | 422 |
| Total Average Columns Invisible Production | .... | 71 | 23 |
| Total Pages Published | 712 | .... | 1,728 |
| Comics and Roto | 52 | | 88 |
| Black and White Pages Published | 660 | 1,542 | 1,640 |
| Percentage Non-set Display | 28% | 39% | 29.7% |
| Percentage Classified (Non-set) | 66 2/3% | 44% | 47.6% |
| Forms Made, Black-White | 700 | 3,051 | 2,229 |
| Composing Room Page Cost—Black and White only | $7.81 | $38.44 | $26.27 |
| | Column Inches | | |
| Ad Alley Standard (Per situation per day) | 360 | 210 | 200 |
| Ad Alley Production | 204 | 120 | 104 |
| Ad Alley Deficiency | 156 | 90 | 96 |
| Percentage | 43% | 43% | 50% |
| Total 6-day situations | 22 | 228 | 155 |
| Average Hour by Wage Rate | $.995 | $1.558 | $1.353 |
| Composing Room Expansion Factor | 37% | 37% | 66% |

TABLE VI—(CONTINUATION OF TABLE V)

(One Month Period)

| | | | |
|---|---|---|---|
| Pages of Display Published | 221 | 769 | 831⅜ |
| Invisible Display Production | .... | 93 | 23⅛ |
| Gross Display | 221 | 862 | 854½ |
| Mat Electro Plate Repeat Display | 63½ | 342 | 254¼ |
| Display Production | 157½ | 520 | 600¼ |
| Average Pages of Display Produced Daily | 5¼ | 16¾ | 19⅜ |
| Total Ad Alley Situations | 4 4/7 | 50 | 49 |
| Non-Productive | .... | 27 | 16 |
| Productive Situations | 4 4/7 | 23 | 33 |
| Percentage of Total | 100% | 46% | 67% |
| Total Blacks-White Pages Published | 660 | 1,542 | 1,640 |
| Composing Room Pay Roll (One Year) | $63,000.00 | $900,000.00 | $500,000.00† |
| Cost of Local Display Reconstruction | .... | $137,400.00 | $ 42,120.00 |
| Percentage of Pay Roll | .... | 15.27% | 8.47% |
| Constructive Pay Roll | $63,000.00 | $752,600.00 | $457,880.00 |
| Linotype Deficiency | $ 5,824.00 | $ 21,200.00 | $ 32,760.00 |
| Ad Alley Deficiency | 5,824.00 | 37,000.00 | 32,760.00 |
| Total Excess Cost due to Production Deficiency | 11,648.00 | 58,200.00 | 65,520.00 |
| Percent of Constructive Pay Roll | 17.4% | 7.7% | 15.3% |
| Actually Saved First Year | $ 6,700.00 | .... | .... |
| Total Waste | $11,648.00 | $195,600.00 | $107,640.00 |
| Percent | 18% | 23% | 22.7% |
| Situations Engaged in Ad Alley Reconstructions | .... | 17 1/3 | 6 |

†One Year.

It is evident from the foregoing comparative figures that difference in page costs is caused to a greater extent by news room and business office policies than by lack of production per labor hour in the composing rooms. The fact is that many composing rooms are getting from 20% to 25% less linotype production than the reasonable standard of 1840 lines in 8 hours and in the ad alleys production generally is from 30% to 50% less than a reasonable standard. Hence the page cost comparisons are likely to be fair enough from the standpoint of production per labor hour. However, the various elements covered in the foregoing vary so greatly in every plant that the channel conditions tributary to the composing room must be thoroughly analyzed before the responsibility is placed upon the composing room.

Composing room executives frequently suffer unjustly because of failure of the business office to thoroughly investigate the conditions referred to. On the other hand the effects of lack of proper rules and regulations governing the advertising dead lines, news dead lines, art dead lines, etc., are not by any means so conductive to deficiency in production as composing room executives come to believe as time rolls on without any systematized effort to determine the facts.

### REASONS FOR VARYING PAGE COSTS

Another Exhibit, Table V, is set up for the purpose of illustrating effects of demands occasioned, first by nature of field operations, determining number of editions and the time allowed for producing the newspaper, competition, which determines largely the dead line factors that exert such costly influence upon production costs, and wage scales another varying and important cost element.

Three newspapers, X, Y and Z, are included in this exhibit. The picture presents two extremes, the city of 40,000 requiring only one edition in the morning field and the city of 3,000,000, requiring eight editions in the morning field. The third newspaper Z, an evening and Sunday in a city of a half million population, printing six editions. From the standpoint of the visible production which in each case is the final edition, production of the two great dailies was just two and one-half times the production of the smaller daily. The quality of craftsmanship and print of the small daily was equal to that which characterized the metropolitan dailies. Yet with only 50% increase in visible composing room load, the situations and payrolls carried to produce these newspapers varies as shown on table V and VI.

These tables illustrate the demoralizing influence exerted upon composing room production by competitive conditions and newspaper business policies. Newspaper X enforced a reasonable display dead line, so did Z but Y virtually reconstructed 50% of all local display within two hours of going to press with the first edition. Newspaper X did not permit display advertisers to submit initial copy, kill it and submit new copy to be followed by another revision or two. Hence it had no situations devoted to reconstruction or non-productive display work. Y maintained 17 situations killing display and reconstructing, Z had 10 reconstruction display workers.

Only 46% of ad alley workers in Y were constructive and 67% of Z. Department stores in many locations employ cheap and incapable ad writers throwing a burden of expense upon publishers thereby that approximates substantial sums. In addition, the rewriting of copy and final revisions, constitutes a sizable porportion of total page costs. A composing room that is obliged to set 100 columns of news in four hours to make the first edition which is largely killed can hardly be expected to operate under a condition comparable to that of a composing room that has six hours in which to set a similar amount of type.

### CONVERSION OF CONTRIBUTORY CONDITIONS INTO TIME ELEMENTS

All these contributory conditions must be analyzed in the

*(Continued on page 24)*

TRADE LINOTYPE MARK

# CEYLON RUBBER KEYBOARD ROLLS

**—made of the finest Ceylon Crepe Gum**

**—have the utmost resiliency, do not harden or become "gummy"**

**—unaffected by changing climatic conditions**

**—resist the cutting wear of keyboard cams**

AFTER exhaustive experiments and testing, both by factory executives and by the trade, the finest grade of pale Ceylon Crepe Gum has been adopted for Linotype Keyboard rolls.

This new rubber has the utmost resiliency and resistance to the cutting wear induced by the action of the keyboard cams. Even over a considerable period the surface of the Ceylon roll does not harden or become "gummy" through changing climatic conditions.

Unlike sulphur cured rubber, the Ceylon rubber roll is free from "blooming" and any accumulation of foreign material working to the surface. There is no reclaimed rubber in the Ceylon composition—it is the highest priced and best rubber possible to procure. Neither has any pigment been used in the composition for coloring. The natural ingredients and methods of curing determine the attractive color.

All raw material used for manufacture is NEW and carefully inspected as to its quality. During the manufacturing process each roll receives special handling in every operation. All material is carefully weighed and manipulated to insure each roll being of uniform, proper composition, and each is individually tested and inspected to conform to specifications. Order your supply from the nearest agency.

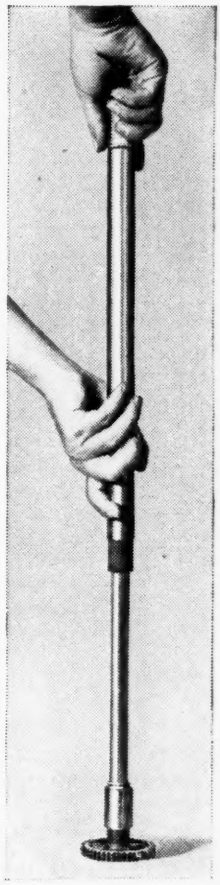
**Part No. H-2601—Price, 85 cents each—**
**In stock at all agencies**

TRADE LINOTYPE MARK

## MERGENTHALER LINOTYPE COMPANY

**BROOKLYN, NEW YORK · SAN FRANCISCO · CHICAGO · NEW ORLEANS · CANADIAN LINOTYPE, LIMITED, TORONTO, CANADA**

**Representatives in the Principal Cities of the World**

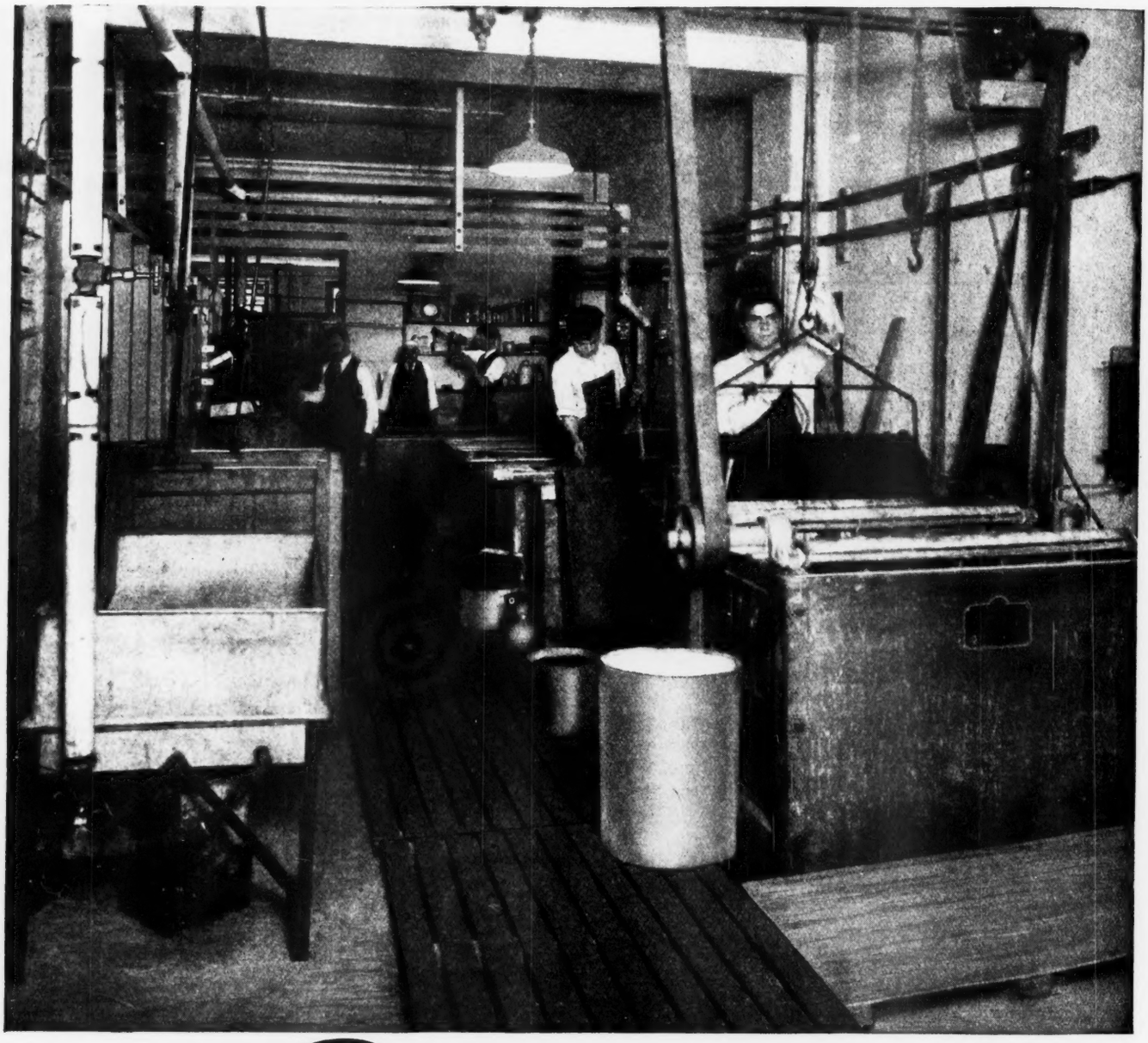


## It's EASY To Replace KEYBOARD ROLLS

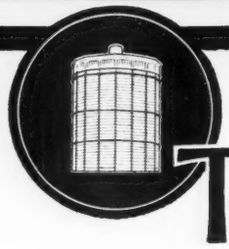
The new Rubber Roll Assembling Tool makes the replacing of Keyboard Rubber Rolls on the shaft a simple, easy operation.

When applying a new roll, just have the shaft clean and start the roll on the shaft a half inch or so. Then stand the shaft vertically on the floor or work-bench, slip the Assembling Tool over roll—and with a firm pressure force the roll on the shaft. That's all—it's just as easy as it sounds. Rubber Roll Assembling Tools are carried in stock at all agencies.

**Part No. H-2897**
**Price, $1.40 each**



Gas-heated solution tanks for chromium plating



THE problems encountered in solution-heating on any scale are quickly and economically solved by the application of gas heat. Gas-heated tanks last longer; modern turndown equipment keeps idle and waiting tanks on an economy basis. The new book "Gas Heat in Industry" tells how others have found gas heat ideal for solution-heating. Write for it.

AMERICAN Gas ASSOCIATION

420 Lexington Avenue, New York

GAS FOR HEAT WHEREVER HEAT IS NEEDED

# Latest Printing Equipment Mechanisms

### The Bobe-Meter for Testing Plates

ADOLPH BOBE, Daily News Bldg., Dayton, Ohio, is the designer of a new instrument known as the Bobe-meter, which is useful for testing the trueness of the printing line of stereotype plates in the foundry or pressroom. It indicates instantly, by thousandths of an inch, the defects in plates which cannot be found with micrometers or plate gauges. The use of the Bobe-meter is simplicity itself. No mathematical computations are necessary as it is furnished with a sensitive indicator having a direct-reading dial.

It is conceded that all curved plates, particularly newspaper stereotype plates when cooled by the aid of water, show some distortion. This distortion usually leaves both ends of the plates higher than the central portions on the face side. If this distortion depth exceeds 0.004 inch, it is almost impossible for the pressman to bring up the printing line by means of makeready in order to obtain good printing. The corresponding distortion on the back of the plate can easily be corrected by shaving the plate, as is now the practice.

The Bobe-meter is an instrument which, for the first time, accurately measures this distortion or concavity in thousandths of an inch. Applied to the back of the plate, the Bobe-meter will show at a glance whether the plate has been shaved evenly.

Mr. Bobe claims that every foundry superintendent should check plates on both sides once a week to control this distortion within 0.004 inch by regulating the amount of water flowing through the casting box cooling system. His investigation in some newspaper plants has demonstrated that plates have been produced which are as low as 0.012 inch in the middle.

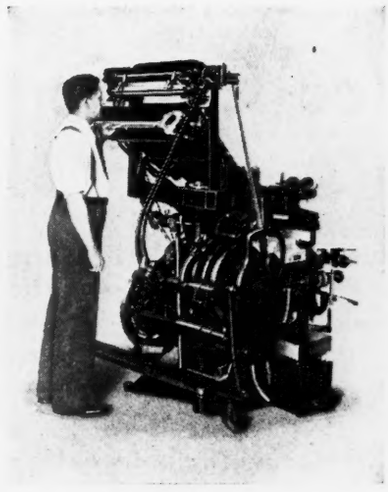
This instrument may also be used by the stereotyper to try out plates which have not been removed from the cylinder of a Junior Autoplate.

The Bobe-meter will instantly check the printing surface of any particular spot between column rules on any portion of a newspaper page plate.

For the pressman, this is a valuable instrument, as it can be employed to measure the depth of open spaces on plates which heretofore have been the cause of departmental differences between the stereotype room and the pressroom. It also shows when plates have been sprung through improperly locking them on the press cylinders.

Practical application of the Bobe-meter is obtained by first calibrating the indicator. This is done by placing the nickeled steel strip which accompanies each meter, over the indicator contact point and pressing it firmly against the meter bar. While holding the nickeled steel strip in this position, turn the indicator dial rim until the hand or pointer coincides with "O" or zero on the dial. Now lay aside the steel strip and place the meter straight across the plate to be tested. Through the action of the sensitive contact rod or "feeler" the pointer will indicate in thousandths of an inch the height of the surface being tested in relation to the portions of the plate upon which the meter bar rests. The meter bar is constructed of aluminum and is easily handled.

### Intertype Announces New "Mixer"



A new line-composing machine, called the Model F Mixer, has been announced by the Intertype Corporation. Its outstanding feature is the combination of mixer advantages with the high-speed necessary for "straight" composition.

The mixer advantages are (1) automatic distribution, permitting instant changes from one magazine to another, without waiting for the last line set to be distributed; and (2) the ability to mix different faces—such as lightface, lightface italic, small caps, bold, and bold italic—in the same line. Such mixed composition can now be handled at the same speed as ordinary straight composition.

The high speed of this new Intertype Mixer is the result of important changes in design. On all mixers heretofore the matrices had to travel further, from magazine to assembler, than on a single-distributor machine. On the new mixer the matrices travel the same distance as on the fastest machines used for straight composition. As a result, the matrices reach the assembling elevator in the same interval of time as on any other Intertype. The "feel" of the keyboard is exactly the same, and the "response" to the keyboard is exactly the same.

In the distributor, too, the distance of matrix travel has been reduced by several inches. In fact, the over-all height of the new machine, as well as all the paths of matrix travel, are the same as on the fastest straight-matter Intertypes.

These improvements were made primarily to permit the use of the new Mixer, with its quick-change advantages, on straight composition which must be handled at maximum speed. This includes straight news composition for newspapers, and book and job composition where speed is the first essential. Twenty-one Intertypes of this new design are already being used exclusively "in the line" of one important daily newspaper—the New York *World-Telegram*—for straight news composition, classified advertising, etc.

Another outstanding feature of the new Mixer is simplicity of construction. The distributor is of particularly ingenious design. The automatic sorting of the matrices for different magazines is accomplished with a single distributor box. Distribution is said to be fully as dependable as on a single-distributor Intertype.

---

### Eliminating the Core Account

Many of the large newspaper and printing plants using presses with removable arbors have succeeded in avoiding the expense of what is commonly known as the "core account," by utilizing the Oneida Chuck for unwinding paper from the rolls.

Most large printing and publishing plants using paper stock wound on metal-tipped or steel cores and fed into the press directly from the roll, still find it necessary, however, to maintain these core accounts consisting of the various

# You Can't Control Nature
# But You Can Control Paper Condition

JUST ahead of us are the long months of the year when the printing trades are confronted with problems that annually cut deep into profits, and yet, for which there is no real good excuse.

Fall and winter, with cold weather and artificial heat, bring conditions in press room and bindery that result in untold trouble and expense unless properly understood and combatted. Lack of moisture — or low relative humidity — means that the paper will not function properly, and time and money is wasted through needless breaks, spoilage and delay.

The remedy is simple enough. Get the proper amount of moisture into the paper and all goes well.

But the problem has been how to have the paper in the proper condition at the time of its use.

Vapo Systems, Inc., provides the answer to this perplexing query. Through the development of a small device which is attached to the press units, absolute control of the moisture content of the paper is assured at all times during the printing process.

This device, which utilizes compressed air and water to produce a fine vapor mist, is also adaptable to use in bindery or wherever paper or pasteboard is handled in printing or manufacture.

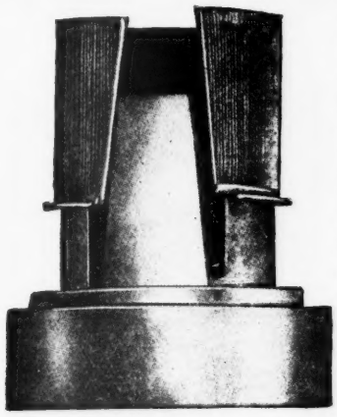
Better printing results are obtained through the use of this automatic device. It eliminates static. It makes possible much higher press speeds. It reduces to a minimum paper breaks, flying ink and paper dust on rotary presses. It effects substantial savings in ink, paper and time. It accomplishes results which cannot possibly be obtained through general room humidification alone. In short, no publisher or printer can afford to be without Vapo Systems automatic vapor heads in his plant.

The cost of equipment and installation is so small that in many instances the savings effected the first year would pay for the entire job and its upkeep. The maintenance cost is nil.

Write today for further details regarding this device. We would be pleased to explain how Vapo Systems equipment can save you time and money, and permit you to turn out a better and more satisfactorily printed or manufactured product.

Vapo Systems
Incorporated

211 West Wacker Drive CHICAGO, ILLINOIS



expenses in connection with the mill or supply house. Naturally the original cost of cores of this character require that they be returned. Yet there is no reason why every printing plant using removable arbors cannot adopt the method of the newspaper plants and utilize the Oneida Chuck to eliminate all this expense for returning cores — freight and drayage charges, in addition to the cost of time and labor in handling. Worthwhile savings can be secured in the course of a year by abolishing this core account.

The Oneida Chuck, manufactured by the John Waldron Corporation of New Brunswick, N. J., makes it possible to use paper stock wound on spiral or straight paper cores. In the case of plain straw cores, the cost is so little that they are not worth returning and by the use of the Oneida Chuck, a grip is obtained on the inside of the paper core itself, thus entirely eliminating the need of metal-end or steel cores.

Furthermore, this chuck, without damaging the core, permits the roll to be run down to the last thickness of paper, whereas, the conical or wedge-shaped chucks now commonly used with paper cores frequently split the core ends so that from 1/4 inch to 1/2 inch of paper immediately next to the core is damaged. The Oneida Chuck therefore saves this paper loss and eliminates the time and expense incidental to skinning down or stripping cores preparatory to returning them to the mill.

It is designed to use where a removable arbor is fitted into the roll, and for rolls wound on paper cores without metal ends, or for rolls without any paper core, the paper being shipped with wooden plugs on the end of the roll only.

The chuck castings are made of malleable steel and are practically indestructible, and the chuck is furnished either with regular set screws or with patent clamp for the shaft.

A split corrugated collar or clip, having a tapered opening, slips over the chuck. As the chuck is moved into the collar, a wedge-shaped tongue in the chuck enters the corresponding opening in the collar and expands its corrugated surface against the inside wall of the core. The corrugated collar or shell grips tight and holds the roll perfectly.

Its use provides economic advantages for the shipper as well as the user of paper in the roll and these advantages, along with a detailed description of the Oneida Chuck, are contained in a folder that can be secured by addressing the John Waldron Corporation, New Brunswick, N. J.

### Recent Linotype Improvements

A retaining pin has been added to the vise jaw (R. H.) block and a grove added to the anti-friction roll to keep the roll from slipping out when the block is removed.

A lock washer has been added to the knife wiper lever roll bracket to prevent the bracket from working loose.

A new spaceband lever pawl guide piece for forty-two pica Linotypes has been designed with the lugs increase in size, and specially heat treated, to obviate the possibility of the breakage of the lugs when the spaceband lever pawl slides over the top of the second elevator.

A lock washer has been applied to the ejector cam screw, by enlarging and deepening the counterbore of the hole in the ejector cam, to prevent the cam from becoming loose and damaging the ejector lever.

A hole has been placed in the flange of the feeder housing


# Announcement

●

The Stereotype Mat Department of the C. F. Burgess Laboratories, Inc. was organized as a separate company on July 15, 1931. It is known as the Burgess Cellulose Company and will have its headquarters at Freeport, Illinois. It will continue the manufacture and distribution of Burgess "Chrome" Stereotype Mats, and will produce such other cellulose products as will properly fall within the scope of its activities.

While we have often been complimented on our past service, it is our belief that by centralizing the sales and manufacturing branches we can be of still greater service to our customers.

Effective August 1, 1931, all correspondence, orders, remittances, etc., should be addressed to the Burgess Cellulose Company, Freeport, Illinois.

**STEREOTYPE MAT DIVISION**

**C. F. BURGESS LABORATORIES, Inc.**

*Manufacturers of cellulose, acoustic and electric products*

**111 W. Monroe St. Chicago, Ill.**

# AS ON WINGS!!

THE "DO-MORE"

*De Luxe Rolling Table Saw Trimmer*

**ROLLS**

*Replace Your Old Saw with This New Mechanical Marvel*

*Why Push a Stone Boat in This Age of "Wings?"*

**Another Creation by Richards**

■

**LIFE TIME FEATURES**

ROLLING TABLE—*Speed with Ease*
DIRECT MOTOR DRIVE—*No Belts to Slip*
DIRT-PROOF SPEED GAUGES—*1 to 90 Picas*
SPLIT GAUGE FINGER—*For Short Mitres*
INSTANT SAW CONTROL—*No Cranking*
BULLDOG SAFETY CLAMP—*Speed and Safety*
NEW HARD SAW—*Throw Away Files*
50-POUND CAPACITY CHIP BUCKET—*Built In*

**Power » Speed » Accuracy**

■

Get Your Order in Early to

**J. A. RICHARDS,** ***The Sawmaker***

*Direct to you from Kalamazoo*

If you must use your old saw,
let us equip it with our new
BULLDOG CLAMP and SPEED GAUGES


of the Linotype Metal Feeder used on the Linotype electric pot, to permit the insertion of a thermometer without removing the housing.

The shape of the pot return cam has been changed to advance the return of the pot, thus preventing undue strain on the pot and mold mechanism due to solidification of metal when relatively cold.

The shape of the distributor screw (front) gear guard (lower) has been changed by the removal of a section to permit easy access to oil holes.

The handle of the pot well brush has been lengthened to clear the top of the mechanical thermostat for the electric pot.

The side bearing face and operating point of the distributor shifter slide latch has been changed to eliminate the possibility of its slipping over, jamming the distributor shifter slide link and possibly damaging the second elevator.

The corners and edges of the bent section on the spaceband chute plate (long) have been rounded to prevent the catching of extra thin spacebands.

---

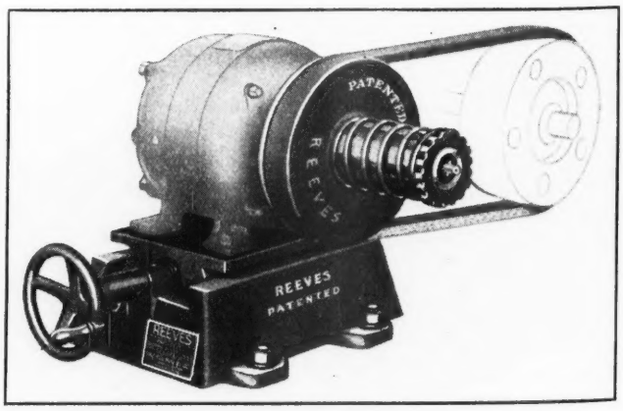
**Richards Creates a New Saw**

J. A. Richards, the saw-maker of Kalamazoo, Mich., has just announced the Du-More Deluxe Rolling Table Saw-Trimmer for use in the composing room. The rolling saw table provides speedy operation with minimum exertion. The saw is directly connected to the motor, thus eliminating all belts. Other features of this new model are: Dirt-proof speed gauges, adjustable from 1 to 90 picas; split-gauge finger for short miters; instant saw control; no cranking; Bull-dog safety clamp; new hard saw which eliminates hand-filing; a 50-lb. capacity built-in chip bucket. The pedestal is so constructed as to provide a liberal space through which the chips and waste ends of slugs may pass without clogging before falling into the chip bucket. The Bull-dog safety clamp has been dubbed "the free-wheeling clamp," on account of its construction which enables anyone to obtain a vise-like lockup of the material about to be passed through the saw.

---

**Vari-Speed Motor Pulley**

All auxiliary equipment such as chain drives, gears, etc., is eliminated by the use of the new Vari-Speed Motor Pulley, developed by Reeves Pulley Co., Columbus, Ind., which is mounted directly on the motor shaft and forms an adjustable speed driving element between the motor and driven shaft. The motor pulley, shown herewith, consists of an assembly of two opposing cone-faced discs, one stationary



and one sliding, and an adjustable power compression spring, all of which is self-contained; a special motor base with adjusting handwheel, by which the motor may be moved forward or backward; and a special type of V-belt, which contacts on its sides between the cone-faced discs and on its flat surface with the driven pulley.

When the motor is at the position on the special base nearest to the driven shaft, the V-belt assumes the largest diameter formed by the cone-faced discs, forced together by the spring, and the maximum speed is obtained at the driven pulley. By turning the handwheel, the motor is moved away from the driven pulley. This causes the V-belt to assume a smaller diameter between the discs, the sliding disc moving laterally but held in contact with the belt by means of the spring. Thus the speed of the driven pulley is reduced. When the motor is moved to the position farthest away from the driven shaft, the belt assumes the smallest diameter and the minimum speed is obtained.

## New Catalogs, Books and Bulletins

Readers of PRINTING EQUIPMENT ENGINEER who are interested in securing any of the catalogs, books or bulletins listed below can do so by checking the literature desired. Mark carefully only that literature which you wish to receive . Fill out the coupon, tear out the page and send it to us. The literature will be forwarded without cost.

*Camrite Super-Cushion Cam Rollers*—Bulletin No. 194, printed in blue and black, 4-page circular, 6″x9½″, describing a new type of cam roller for use in Linotype and Intertype keyboards, having what the manufacturers are pleased to call a new mechanical principle. The folder also describes and illustrates a new rubber star wheel.

*Presto Lino-Inter Mat-Magazine Cleaner and Drier*—A 4-page illustrated circular describing a new electrically-operated matrix and magazine cleaner and drier which is intended to displace hand-cleaning of magazines and matrices. A spaceband with new eccentric locking pin at the lower end of the wedge is also described.

*Forty-two Pica Slugs Save Time*—Six-page folder, amply illustrated, demonstrating advantages of 42-pica slug composition on the linotype.

*A Concise List of Chemical Prices*—Published by the Philip A. Hunt Co. A 20-page-and-cover booklet, giving chemicals, size of packages and prices of the many chemical products handled by this company.

*Presenting a New Variable Speed Unit*—A 6-page folder, letterhead size, done on enamel paper in red and black ink, showing the merits of the Reeves Vari-Speed Motor Pulley for application to cylinder presses, printers and slotters and platen presses, as well as machines used in various other industries.

Printing Equipment Engineer,
1370 Ontario St., Cleveland, Ohio.

Gentlemen:

Please send the literature checked above without obligation.

Name of Company .....

Attention of .....

Address .....

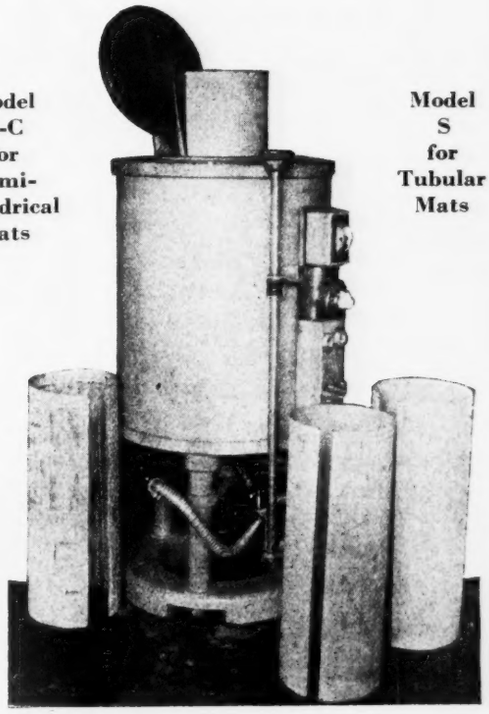
City ..... State .....


**FORM-O-SCORCH**
**Centrifugal Matrix Scorchers**

**FORM *and* SCORCH**
**ONE OPERATION**

**Model S-C for Semi-Cylindrical Mats**

**Model S for Tubular Mats**



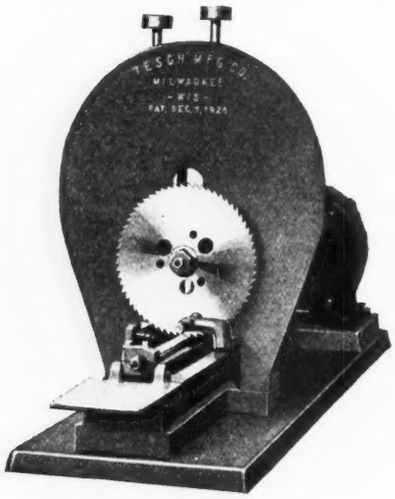
**MODEL S MACHINE**

**Thermostat Heat Control**
**Uniform Heat ALL THE TIME**
**Will Not Burn the Matrix**
**Eliminates Buckles**
**Uniform Shrinkage**
**18x18″ Floor Space**
**7/10th Kilowatt per hour, Model S**

*Sold by*
**Dry Mat Mfgrs. Printing Press Mfgrs.**
**General Electric Co.**

**American Publishers' Supply Company**
**P. O. Box 131, West Lynn, Mass.**

# *Sharpen your own Saws and Save Money*




Why bother sending saws out to be sharpened? Why put up with the inconvenience of dull saws, spoilage and delays waiting for saws to be sharpened and at the same time pay for the sharpening?

## *The* TESCH *Automatic* SAW FILER

. . . is a composing room economy and convenience. This Tesch Saw Filer is priced *unusually low.* Its many economies soon save the purchase price. It can be had in hand power or motor driven types. It is fully automatic, only two simple adjustments, adjustable as to angle and pitch, and built to give a lifetime of service. It is guaranteed to be of high grade materials and workmanship; any defective part will be replaced free of charge within a period of one year.

Send the coupon below and let us give you our latest prices on the Tesch Automatic Saw Filer.

●

## TESCH
## Manufacturing Company
### 419 North 27th Street
### MILWAUKEE :: WISCONSIN

TESCH MANUFACTURING COMPANY,
419 North 27th St., Milwaukee, Wisconsin.
Gentlemen:—
Without obligation please send me complete information and prices on the Tesch Automatic Saw Filer.

Firm Name _____

Attention of _____

Address _____

City _____ State _____


## Publisher Partly to Blame

*(Continued from page 16)*

light of time elements before it would be possible to compare the costs per column of one newspaper with the costs of another. The following comparison of gross display loads of these three composing rooms together with attendant comments will explain fully the need for intelligent research in the interest of establishing a reliable yard stick for the measurement of composing room production, which yard stick will be acceptable to publishers and workmen alike.

The display load of Y was 80 pages less than Z yet Y had 17 journeymen constantly engaged in display revising in ad alley and Z only six. The difference is accounted for by difference in the business policies of the two newspapers. Both were very old newspapers of finest quality and integrity. It was the opinion of this writer that Y was fully as capable of enforcing rules and regulations governing display dead lines and revision and reconstruction service was was Z. Z set a limit upon the revising and reconstruction service and stuck to it, permitting the advertiser to exercise the privilege of withdrawing his patronage if the policy of the newspaper was not acceptable while Y rather than risk the loss of business practically extended an unlimited reconstruction service, making tremendous revisions beginning two hours prior to composing starter time and accepting corrected display proofs from advertisers even within a half hour of starter time. Where under such circumstances can be found a fair-minded man familiar with composing room routine who would dare to say that Y's page cost $38.44 was higher than that of Z at $26.27.

### RESULTS OF CHECK

Three months following the survey of a composing room and a mail room for a metropolitan newspaper, a check was made to determine the actual improvement. The monthly reduction within three months had been $1,600. The publisher saved on the payrolls of two departments within 12 months just $19,200.

The outcome is not always so encouraging. The results depend upon the degree of earnestness with which the business administration cooperates with the mechanical departments. This is true, however, any payroll totaling $200,000 per annum should certainly be subjected to a measure of control. No able executive would be so careless as to operate a business doing $200,000 a year without establishing the conventional safeguards. A payroll of $200,000 per annum represents a trust that is worthy of an equally serious stewardship.

Work in widely scattered newspapers of various sizes and strength has impressed forcibly upon me that instead of our problems being peculiarly different they are peculiarly similar, and if this be so we are faced with the absolute necessity of cooperative action toward establishing standardized comparisons of production.

The comparisons will aid in the elimination of waste the dollar savings of which can go toward meeting the ever-increasing competition. My cry is to save dollars on newspapers facing the over-powering economic necessity to save, and for the more affluent newspapers to divert lost motion into the betterment of the American newspaper product, as a still better vehicle with which to sell merchandise.

Let us take a hypothetical case of a publisher who is satisfied with the costs in his press room until he is faced with a new competition in the form of color. Let us say by means of an analysis that it was found one or two editions could be eliminated without serious loss of circulation, and that enough overload existed that color could be offered to advertisers for little or no additional cost. The analysis would not save the publisher one dollar, but it would enable him to make

more effective use of the dollars he already is spending, and he would have aided toward strengthening newspaper advertising as a whole.

Likewise in the composing rooms analysis will often reveal waste and lost motion which can be converted into a higher standard of typography. Thus newspaper advertising can be made still more effective without additional costs, and in certain fields the industry might recapture some of the thousands of dollars which it is to the eternal disgrace of the business are taken out of newspaper budgets and spent by advertisers to have their newspaper advertising constructed in outside plants—thus again the industry can be strengthened at no loss to any man now participating in it.

## Recent Linotype Typographic Developments

The latest cutting of Linotype Textype is in the 14-point size in combination with Bold Face No. 2. "This size should appeal particularly to publishers of books for young readers," runs the Mergenthaler announcement, "as it is extremely legible, and, despite its seemingly large characters, incorporates the space-saving features that distinguish all members of the Textype family. But its use will not be limited to text and story books for children, as it readily lends itself to various forms of advertising, and can be used to advantage for catalogs, circulars and many other forms of commercial printing. All sizes of Textype from 6 to 14 point are now available."

HERE is a brief showing of 14 Point Linotype Textype in combination with **Bold Face No. 2.**

HERE is a brief showing of 6 Point Granjon with Granjon with **Granjon Bold,** previously announced, that is proving so popular for book, magazine and program work, as well as for advertising and many other forms of commercial printing. Other sizes of **Granjon Bold,** the latest member of this type family are 8, 10, 11, 12 and 14 point.

With the cutting of 6-point Granjon with Granjon Bold, six different sizes of this combination of faces is now available on the Linotype—6, 8, 10, 11, 12 and 14-point Granjon with Granjon Bold.

Italic "Wh" and "Th" ligatures—characters that make for closer and more attractive fitting in certain word formations—are now available in all sizes of Linotype Baskerville, Bodoni, Bodoni Book, Bodoni Bold, Caslon Old Face, Cloister, Estienne, Garamond and Granjon.

24 Point Pabst Extra Bold Condensed

**ROMEO THREE**
**When Men Hojo**

A new face for advertising composition—Pabst Extra Bold Condensed—is now being cut for the Linotype in the 18, 24 and 30-point sizes. "Like Pabst Extra Bold, a good sturdy type for places where type must be black," runs the Mergenthal announcement," this condensed cutting also is sturdy, but affords a greater letter count. Its strength and compactness qualifies it for effective use in food store and other advertising calling for strong treatment of items listed."

**Wood Dry Mats Will Help Your Plant Get Better Production**

NOT only is the quality of production greatly improved when Wood Dry Mats are provided, but the quantity production is increased. Wood Dry Mats approach so nearly the 100% output you are striving for that delays are eliminated, morale is kept high, and final results in the printed newspaper are bound to meet with the approval of the management.

Our Service Man in your territory is always ready to back our claims with a demonstration right in your own plant.

WOOD DRY MATS
ALWAYS UNIFORM

WOOD
FLONG CORPORATION
HOOSICK FALLS, N.Y.

# Quality Printing Plates

*The American Pressman* for June carries an editorial advertisement entitled, "Quality in the Plates From Which We Print," which is well worth reading and studying.

■

It may be summed up in the statements, "An inferior printing plate is a bad start in the pressroom, and a handicap that cannot be overcome," and "The economy of good plates is too frequently overlooked."

■

The use of Certified Dry Mats helps co-ordinate the work of the composing room, stereotype foundry and pressroom, and enables the production of well printed papers day in and day out.

■

If you want the cheapest and best insurance for the quality of your printing plates it will pay you to depend upon Certified Dry Mats as so many of your fellow publishers already do.

■

We respectfully suggest that you try a case of Certfied Dry Mats in your own foundry, under your own working conditions.

■

Forget price! Use quality at the right price! It pays!

**CERTIFIED DRY MAT CORPORATION**

338 Madison Avenue New York

*For dependable stereotyping—use Certified Dry Mats*

Made in U. S. A.


## Wisconsin Executives Meeting

*Ray G. Leach, Newly-Elected President of the Wisconsin Newspaper Composing Room Executives' Association.*

THE third annual conference of the Wisconsin Composing Room Executives' Association was held at the Retlaw Hotel, Fond du Lac, Wis., June 15th and 16th.

Ray G. Leach, assistant business manager of the Milwaukee *Leader,* conducted the discussion on "Keeping Cost in Newspaper Composing Rooms." At the Retlaw Hotel on Monday, June 15th, E. Martin of the *Commonwealth-Reporter,* addressed a luncheon meeting on "The Newspaper Game." The Mohr Lino Saw, composing room management and a question box also received considerable attention at the various sessions.

The following officers were elected for the coming year: President, Ray G. Leach, Assistant Business Manager, Milwaukee *Leader;* Vice President, Elmer Olsen, Superintendent Composing Room, Superior *Telegram;* Secretary-Treasurer, M. E. Cartier, Superintendent Composing Room, Appleton *Post-Crescent.*

The June, 1932, meeting will be held in Racine, Wis.

## Action of Matrix Powder

The University of Illinois chemical laboratory, at the request of a publishing firm, recently conducted a series of tests with a certain brand of matrix cleaning powder. The samples were allowed to stand about two-thirds submerged in the various solutions for the time specified in the table.

The results of the tests are interesting and are summed up by the analyst in the table below.

| *Solution Used* | *Time of Exposure* | *Original Weight of Sample** Grams | *Final Weight of Sample* Grams | *Decrease in Weight of Sample* |
|---|---|---|---|---|
| Distilled water | 48 hours | 7.6442 | 7.6439 | 0.003% |
| Matrix powder solution mixed as per directions | 5 minutes | 7.5445 | 7.5357 | 0.12 % |
| Same | 30 minutes | 7.6172 | 7.5445 | 1.01 % |
| Same | 48 hours | 7.6608 | 6.9173 | 9.71 % |
| Concentrated Solution | 48 hours | 7.6790 | 3.4916 | 54.53 % |

*7 point lower case "w" new matrix.

## Intertype Adds Two Type Sizes

Intertype Corporation announces the addition of the 12-point and 7½-point sizes to its Ideal News family. The 12-point size is recommended for advertising composition and the 7½-point size has been brought out for the convenience of newspapers and magazines who require a size between the 7 and 8-point sizes now in general use.

THIS paragraph is set in 7½ Point Intertype Ideal News with **Bold** and is cast on an 8 point slug. This is the latest size and combination. $123456

THIS paragraph is set in 12 Point Intertype Ideal News with **Bold.** $123456

With the addition of these two sizes Intertype Ideal News wide-tooth matrices are now cut in eleven sizes. Each size includes a combination for almost every purpose.

The new 12-point Vogue border slide shown below has recently been cut by Intertype.

This new slide is also made in the 24-point size. Other sizes are in course of preparation.

## Society of Typographic Arts Elects Officers

The annual meeting of the Chicago Society of Typographic Arts was held June 30th.

The following officers were elected for the ensuing year: President, Logan Anderson, of R. R. Donnelly & Sons Co.; Vice President, J. L. Frazier, editor *Inland Printer;* Secretary, R. H. Middleton, Ludlow Typograph Co.; Treasurer, J. A. Lyons, Mergenthaler Linotype Co.

Edwin B. Gillespie, of Bertsch & Cooper, retiring president, was elected a director of the Society. Other directors were E. G. Johnson, Faber Birren and John W. Jennings.

The Society is now making its plans for the exhibit which it will have in connection with the Century of Progress Exposition.

## Gives Press to School

Andrew R. Armstrong, president of the New York Newspaper Printing Presman's Union, at the graduation exercises of the pre-apprentice department of the Central Printing Trades School, 240 West Fortieth Street, New York, held the latter part of June, announced that Henry A. Wise Wood, president of the Henry a Wise Wood Press Building Company, would donate a $100,000 high-speed Wise Wood press to the New York Newspaper Apprenticeship School. This school is operated jointly by the Publishers' Association of New York City and the Printing Pressmen's Union 2 at 240 West Fortieth Street, under the auspices of the Board of Education.

Mr. Armstrong said that the press to be given by Mr. Wise Wood had been running for a year in *The New York Times* plant and that it would be installed "in a suitable place, preferably the proposed new $2,500,000 printing and general trades school centre."


SAVE *what you now pay ON YOUR CORE ACCOUNT*

*By Using The*

ONEIDA CHUCK

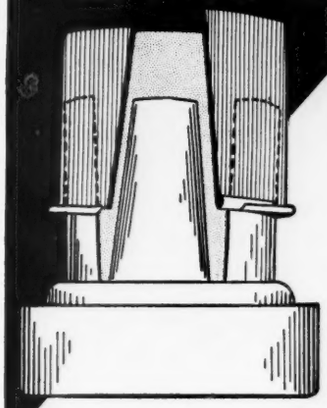


Figure what you pay each year in time, labor and trouble for stripping, handling and shipping of expensive returnable metal tipped or steel cores. All these costs are eliminated when you secure Onedia Chucks that make it possible to use stock wound on inexpensive, non-returnable spiral or straight wound cores, or on rolls without cores. Insures tight, steady grip and permits running down roll to last thickness of paper. Saves entire expense of "core account."

**Write for Our Circular "E".**

It describes the Oneida Chuck in detail and explains advantages and economies for shipper and user of paper in the roll. Tell us diameter of your arbor and inside of paper core or roll for specific information. No obligation.

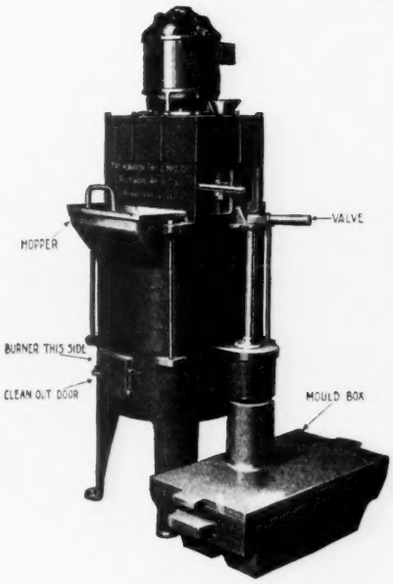
**John Waldron Corp.**

*Makers of Converting Machines Since 1827*

**Main Office and Works: NEW BRUNSWICK, N. J.**

**THE MONARCH METAL RENOVATOR**

is used in stereotyping departments for the direct reclaiming of new metal from dross.




It occupies but two and one-half feet of space and is placed preferably near the larger stereotype pots from which the dross is skimmed. The dross can be immediately thrown into the Renovator, thus eliminating storage of same in cans and the packing for shipment to the smelter.

The Monarch Metal Renovator will reclaim from 65 to 75% new metal from your dross, thereby effecting a substantial saving and maintaining the quality of your metal.

*Write for Catalog P.E.E.*

**The Monarch Engineering & Mfg. Co.**

701-702 American Bldg. Baltimore, Md., U. S. A.

Works, Curtis Bay, Md.

"Let's Ask Imperial!"

"THERE is no use beating about the bush and guessing what's wrong with this metal," says the head stereotyper. "Let's ask Imperial! They can probably help us out of our difficulty in a hurry. From my experience in the past I know that whatever they tell us will be right.

"When you get in trouble it is kind of nice to have somebody you can go to who can straighten you out. Imperial has been helping to solve the problems of printers and publishers for years and their experience means a good deal. And that is one of the reasons why I believe it pays to

*stick to*

Imperial METAL

THE IMPERIAL TYPE METAL CO.
Philadelphia · New York · Chicago · Los Angeles

## Your Questions Answered

### OVERTHROW PLUNGER TOO LONG

*J. B. asks why the capital "W" does not always respond when the key is depressed.*

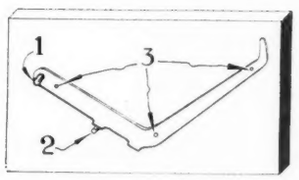
Answer.—In the letter of inquiry he lists what has been done to remedy the trouble. We would suggest that he see if there is 0.005-inch space between the cam yoke and the overthrow spring plunger in the spring bar. If the plunger touches the cam yoke, it would prevent the cam falling freely upon the rubber roller. If necessary, dress the plunger sufficiently to secure the 0.005-inch clearance.

### MOLD DISK BRAKE

*In a recent* ENGINEER, *J. E. asked why he couldn't adjust the mold disk turning pinion brake on an Intertype so that it will hold its adjustment for any length of time. It seems there are three molds in the disk. After swinging from one mold to another, the brake does not function properly.*

In respect to the apparent inefficiency of the mold disk brake, the condition you mention is caused by the unbalanced disk due to the fact that you have three molds in the disk and one dummy mold. The dummy being somewhat lighter in weight than the mold in the opposite pocket, causes the disk to be out of balance and the brake is not capable of preventing overthrow just before the disk is moved forward either to casting or ejecting position. Order one of the new style circular disk brakes and this difficulty will be eliminated.

## Escapement Lever Gauge




Several models of Linotypes are equipped with escapement levers which form a part of the matrix releasing mechanism, suitably mounted on a rack which is interposed between the keyrods and escapement block of the magazine in use.

It occasionally happens that the operator in changing from one magazine to another will accidentally bend one or more of the escapement levers through matrix interference. The lever or levers must then be restored to original contour by bending in a bench vise.

An interested reader of the ENGINEER describes a gauge which enables him to compare a bent lever with a perfect lever mounted upon a block while the work of straightening proceeds. A great many composing rooms do not have at hand extra levers and this gauge is designed to provide a means of quick comparison.

On the various models of Linotypes these escapement levers may be of varying length or slightly different design. In the drawing the type of lever employed on Models 8 and 14 is shown.

Simply fasten a perfect new escapement lever to a piece of steel about 1/16 inch thick with three rivets, indicated at *3*. Then apply two 3/16-inch pins at the positions *1* and *2* shown in the drawing and make them

When straightening a bent lever, slip it over the of sufficient length to extend 1/8 inch above the lever. pivot pin *1* and let it bank against the pin *2*.

## Color Printing in the Daily Newspaper

(Continued from page 6)

routed for color and half for black; that is, all of the metal except the part to be printed in color is routed away on one, and all of the metal except the part to be printed in black is routed off the other. The plates are then ready for the presses.

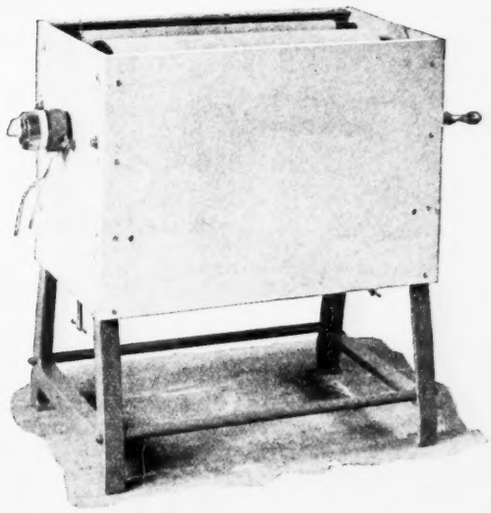
The second type of color combination which I mentioned—that is, where two forms are necessary—is harder to handle. The register is usually more difficult on this sort of a page. The engravers have to register the black and color zincs and it is necessary for the compositor to use a special means to register the matter contained in each form—one with the other. Where only one form is used, any kind of a mat can be made as the plates are all cast from one mat. In the second type, however, it is necessary to make a mat from each form and these mats must register. It is, therefore, advisable to make wet mats and dry them on the forms to insure register, rather than to take a chance on the register of two dry mats which are dried off the forms. In four out of five ads you are likely to have much more open space in the color form than in the black, and the shrinkage of the mats made from each form would not be equal. We have, therefore, found it better to use wet mats. Naturally, the pages made with wet mats must be slightly smaller than those made with dry mats, in order to cast the plates in the same boxes. This is necessary because the wet mats are not allowed to shrink to the press plate size. There is much less routing on the plates when you use two forms, as only the large open spaces must be routed away in order to keep from printing the bottom.

Newspaper presses, in most cases, have been designed to print one impression upon each side of a web of paper and that, in black only. For printing a color page two impressions—one in black and one in color—must be made on the same side of the paper.

In order to print two-color run-of-paper ads with our present equipment we must transform a unit regularly used for black printing into a color printing unit. In other words, each press is enlarged one unit beyond that necessary to print the same number of pages in black.

I realize that in the audience there are publishers who are already printing two-color advertising. Some are doing so by the method which I have outlined, and some by the better method of using color attachments on the press. Register is surer with the color attachments.

The smaller publishers can do this easier than we can because of the greater number of presses we must use. It would be necessary to equip at least two out of every three units with color cylinders. As we have 88 news printing units, the cost of such equipment would be enormous. However we have one advantage to offset this in the unit type presses with thirty and thirty-four

**Cemer Electric Matrix Scorchers**

***Form*** and ***Scorch*** mats of all makes **PERFECTLY** in just **ONE** operation.

***Eliminate Buckles*** and give ***Maximum Uniform Shrinkage.***

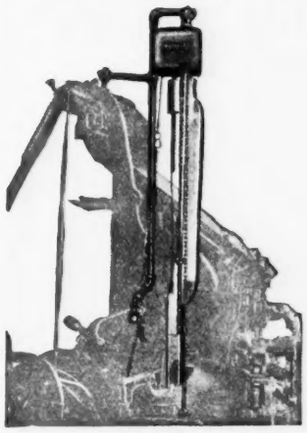
Are ***Fast, Efficient*** and ***Economical*** to operate.

Write us for particulars and addresses of enthusiastic users in your locality.

**J. V. CEMER**

**85 Cleveland Street Battle Creek, Michigan**

**THE MARGACH**
**Automatic Metal Feeders**
*for*



**Linotype**
**Intertype**
**Monotype**
**Ludlow**
**Elrod**

No other article in the Printing Industry can answer its purpose more effectively than the Margach Feeder, which not only sells for the moderate price of $75.00, but its life of 100% efficiency is guaranteed for ten years—and will undoubtedly last indefinitely, 10,000 users can testify to this. Among our sales representatives are the Mergenthaler Linotype Co., Intertype Corporation, Lanston Monotype Co., and the Ludlow Typograph Co.

**MARGACH MFG. CO., INC.**
HERMAN DIAMOND, President
213 CENTRE STREET NEW YORK CITY

**Send for this New Improved MATRIX CLEANER**

PRICE $5 POSTPAID

Pat. No. 1,564,110

Every Linotype and Intertype needs the new improved tubular design Probert Matrix Cleaner. It automatically cleans the reference side of mats, keeping them bright and shiny. Works as type is being set. The longer it is used the better are the results. Entirely automatic. Easy to attach. Fits all makes and models,

*Circular sent on request*

*Satisfaction guaranteed.* *Sold on thirty-day trial.*

**PROBERT TYPESETTING CO.**

**211 S. Ludlow Street, Dayton, Ohio**

**Linotype and Intertype Repair Service**

Molds—side knives—back knives—1st elev. back jaws—spacebands—dist. box bars—2nd elev. bars—magazines—motors—dist. screws made like new—driving shafts bushed—general repairing of parts. Also make special Linotype and Intertype tools—Matrix ear file gauge $2.50—magazine expander $4.50—magazine broach $4.50—liner cutting gauge $25.00—fiber motor pinions for all makes of motors and special pinions made to order.

**William Reid & Co.** 537 S. La Salle St. Chicago • Illinois

**IF YOU HAVE A PROBLEM**

that needs accurate, impartial chemical or engineering research, or an analysis,

CONSULT

**MARINER & HOSKINS, Inc.**

222 West Adams St. Chicago, Ill.

Printing Equipment Engineer requests its readers in answering advertisements to say "As advertised in Printing Equipment Engineer"

units in line, which permits us to add a unit to any size press that we need to use.

The added expense of printing in two colors is in the extra labor and the cost of color inks. In addition to the extra labor required to operate the press, it is necessary that the fountains and rollers be cleaned before and after running the color. There will also be some small added expense on account of paper waste due to register.

It is gratifying to note that a number of publishers are now printing two-color run-of-paper ads. In my files to date, I counted tear sheets of two-color ads from 50 different newspapers. One or two publishers are printing in four color with attachments and reversible cylinders especially arranged for printing color. We are now planning to install equipment with which we will be able to determine just what can be done with newspaper four-color printing at high speeds. This, of course, not only entails the use of new press equipment, but experiments to improve mats and plate-making as well.

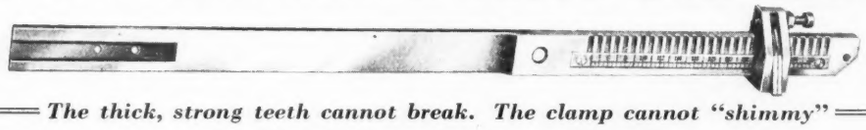
Two-color run of paper advertising is bound to develop enormously. I think the *Tribune's* experience can be taken as a sure index of what is going to happen. Eleven pages in 1929 grew to thirty-one in 1930 and up to the present time in 1931 more than forty pages have been sold. I will not be surprised if by the end of the year we shall have printed at least 100 pages of two-color run-of-paper advertising.

### TOMORROW'S NEWSPAPER

Today, fifty newspapers offer run-of-paper color to advertisers. I am certain as I am of anything that in a few years from now many times 50 newspapers will be selling many pages of two and perhaps four-color advertising. There is no doubt about its effectivness. Tireless experiments, made more eager by the growing pressure of competitive media, will bring inevitable improvement to artistry and in mechanical methods. The newspaper is on the threshold of a great and significant revolution. On a not too distant tomorrow its physical appearance will be even more different from the newspaper of today than today's paper is different from that of our grandfather's time. We must prepare now for this fundamental development. We cannot profitably ignore the times' insistent "Call to the Colors."

**• NEW STYLE ASSEMBLER SLIDE BAR AND CLAMP •**

DESIGNED TO LAST FOR A LONG, LONG TIME.



Bar . . $3.75 Each
Clamp $3.75 Each
Bar and Clamp Ass. $7.25 Each

*The thick, strong teeth cannot break. The clamp cannot "shimmy"*

MANUFACTURED AND SOLD EXCLUSIVELY BY

270 LAFAYETTE STREET, NEW YORK CITY **LINOTYPE PARTS CORPORATION** 314 WEST 10TH STREET, KANSAS CITY, MO.

THE quality of the type produced by your machines is controlled directly by the quality of the metal in the machine pot.

Use Blatchford Metal « the product with a reputation for unquestioned quality backed by 75 years of metal mixing experience.

Don't neglect your metal. « Keep it in perfect working condition at all times. » Let us help you do this « use our laboratory service. « We will gladly make a chemical analysis of samples submitted by any printer or publisher and render a complete and impartial report.

GOOD METAL IS ALWAYS MORE ECONOMICAL

E. W. BLATCHFORD COMPANY

# blatchford

LINO - MONO - INTER - LUDLOW - TYPE CASTER - STEREOTYPE

# METALS

63 Park Row, New York City

608 So. Dearborn St., Chicago

# DIRECT

## From Hot Metal into the Form

The ideal of straight-line production in composing rooms is presented by the Ludlow. For it casts display type in sluglines direct from hot metal, ready to drop into the form.

There are no preparatory measures; no unproductive moves. No need to cast and carry on hand large quantities of type to meet all possible needs which can never be forecast with certainty.

With the Ludlow your compositors never reach for sorts which are not there. The last advertiser to get copy in on a busy day has the very same range of type choice as those who came before.

The publisher seeking the most economical, logical, and satisfactory way of producing display composition will find it in the Ludlow system. May we submit the facts? Without obligation, of course.

LUDLOW TYPOGRAPH COMPANY

2032 Clybourn Avenue + + + Chicago, Illinois

THIS ADVERTISEMENT SET IN LUDLOW 28-L TEMPO LIGHT